



Northeastern
UNIVERSITY

PART-TIME UNDERGRADUATE DEGREE AND
PROFESSIONAL DEVELOPMENT PROGRAMS

www.neu.edu/uc

Training for the 21st century. Education for a lifetime.TM

CALENDAR 1999-2000

Fall 1999 Classes Start Monday, September 27, 1999

September

7	Tues.	Registration begins
15	Wed.	Registration ends
16	Thurs.	Commencement

October

11	Mon.	Columbus Day observed
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November

11	Thurs.	Veteran's Day observed
25-27	Thurs.- Sat.	Thanksgiving Recess

December

13-18	Mon.- Sat.	Final Examination Period
20-21		Snow make-up days (if necessary)
20	Mon.	Holidays Observed

January

2	Sun.	Holidays Observed
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Winter 2000 Classes Start Tuesday, January 4, 2000

December

6	Mon.	Registration begins
9	Thurs.	Registration ends

January

17	Mon.	Martin Luther King, Jr.'s Birthday observed
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March

14-20	Tues.- Mon.	Final Examination Period
21-22		Snow make-up days (if necessary)
21-26	Tues.	Winter Recess

Spring 2000 Classes Start Monday, March 27, 2000

March

6	Mon.	Registration begins
9	Thurs.	Registration ends

May

29	Mon.	Memorial Day observed
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June

5-10	Mon.- Sat.	Final Examination period
17	Sat.	Commencement

Summer 2000 Classes Start Monday, June 12, 2000

May

22	Mon.	Registration begins
25	Thurs.	Registration ends

July

4	Tues.	Independence Day observed
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September

4	Mon.	Labor Day observed
		Final Examination Period
		Last class session of each term

Second Summer 2000 Classes Start Monday, July 17, 2000

July

4	Tues.	Independence Day observed
5	Wed.	Registration begins
6	Thurs.	Registration ends

September

4	Mon.	Labor Day observed
		Final Examination Period
		Last class session of each term

How to Register for Courses

Gone are the days of standing in long lines to register for a course—besides, you don't have that kind of time to waste! Now you can register in a variety of ways. Each term, we publish Schedules for our different program areas, and in them are registration forms and easy-to-follow instructions. If you're a new student, you can fax your registration, mail it, or for some courses, register on-line. If you've taken a course with us before, you can register by phone!

The dates shown above are for Walk-In Registration Only—be sure to consult the Schedule for walk-in dates at the individual campus locations and for the deadlines of our other methods of registration.

Didn't get a Schedule? Call 617.373.2400; TTY 373.2825; or check out the Web site: www.neu.edu/uc or www.neu.edu/cont-ed.



Northeastern University

University College

- Part-time practice-oriented undergraduate degree programs

Part-time Professional and Continuing Education

- Short-term training and education programs for working professionals and adults in career transition

**Bulletin
1999-2000**



Dr. Leon Zaborowski
Vice-Provost for Adult and Continuing Education and
Dean of University College

If you're like me—someone who enjoys surfing the Web—you know how frustrating it can be to finally get to a site only to find that it's "under construction." In a sense, even though this is the biggest—and perhaps the most exciting—*Bulletin* we've ever had, I have the sense that in order for it to be effective, it should never be complete. It should *always* be under construction.

This is not to suggest that something is missing from our *Bulletin*, but rather to make the point that in order for us to help you meet your career goals in a constantly changing environment, we must continually reshape University College and Professional and Continuing Education. We can never be static; we must be tuned into the trends and directions of the marketplace and be ready and willing to adapt to change at all levels—not just in our program offerings, but in the way we utilize technology and in the way we serve our students.

Change is perhaps what our 1999-2000 *Bulletin* is all about. We know that our students need degree programs, but we've come to recognize that they also need classes for professional development—that is why you'll find, in the second part of this *Bulletin*, an exciting array of credit and non-credit courses and certificate programs. We've learned that students want instruction that goes beyond the traditional campus setting, and so we've developed new systems of delivery that bring classes into the corporate conference room and enable students to study on-line after the kids have gone to bed.

With changes in technology happening virtually overnight, it is safe to predict that before this academic year is out we will have experienced even further changes. Therefore, our *Bulletin* will never be truly complete; it, like all of us, will be under construction—in constant movement, evolving and growing.

Leon M. Zaborowski
Leon Zaborowski

P.S. Be sure to check our Web site periodically. Although we can't update this year's printed *Bulletin*, we can update it electronically!

www.neu.edu/uc

"WE MUST BE TUNED INTO THE TRENDS AND DIRECTIONS OF THE MARKETPLACE AND BE READY AND WILLING TO ADAPT TO CHANGE AT ALL LEVELS."

Part-time Programs at Northeastern University

A Commitment to Practice-Oriented Education

Our purpose has always been to provide adult students with educational opportunities designed to enrich personal and interpersonal experiences and to prepare you for your chosen field. In addition, it is our belief that every University College experience should rest on a strong foundation of effective communication, information literacy, and critical thinking skills. Writing skills in particular have been a focus of all credit courses, because a student who has learned to write well has also learned to think clearly and, therefore, has learned how to learn. Writing is a skill that transcends subject area and a tool that can be brought to bear in any situation. We want to help you make strong connections between what you learn in the classroom and what you need to know in the work world and in your lives.

Faculty Steeped in Knowledge and Experience

A course is only as good as its teacher. That's why we carefully select both full-time Northeastern University faculty and practicing professionals from other academic institutions as well as from a wide array of specialized fields for our teaching staff of 800. Bringing an extra dimension into our classrooms are corporate executive officers, research scientists, published authors, established health professionals, law enforcement officers, artists, graphic designers, computer experts, lawyers, professors, and others. They offer students the benefit of their experience and current information about how careers in their fields are changing. Many have found teaching adults particularly rewarding and have expressed their pleasure at having such committed, hard-working, and enthusiastic students.

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BA	=	Bachelor of Arts
BS	=	Bachelor of Science
BSBA	=	Bachelor of Science in Business Administration
BSHS	=	Bachelor of Science in Health Science
BSN	=	Bachelor of Science in Nursing

BUSINESS ADMINISTRATION

Please refer to the Professional and Continuing Education section for more information on certificate programs related to Business Administration and Computer Technology and Information Systems.

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CP	=	Certificate of Professional Achievement (Continuing Education Units)	
PBC	=	Post-Baccalaureate Certificate (Undergraduate Academic Credit)	

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BUSINESS AND MANAGEMENT



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We also offer many degree programs in Liberal Arts. Please refer to Undergraduate Degree Programs section for more information.



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We also offer degree programs related to Computer Technology and Information Systems. Please refer to the Undergraduate Degree Programs section for more information.

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UNDERGRADUATE DEGREE PROGRAMS

Everyone knows that Northeastern is big. As part of a great university, we provide you with the energies and resources of a multifaceted, dynamic institution. Our size allows us to make available nearly 100 degree, certificate, and special programs. What many people don't realize is that because we operate at 11 different locations, our classes tend to be small. And many specialized degree and certificate programs enroll small numbers of students. Last year, the average class size was 13 students. Many classes ran with fewer students, and only 10 percent of all classes offered ran with enrollments larger than 25.

Schedules "in Sync" with Your Lifestyle

We know you're busy, and finding the time to continue your education can be a real challenge. To help you out, we schedule most classes at eleven different locations in eastern Massachusetts and also provide different course formats. While most courses are offered on a ten- to eleven-week schedule, some courses are offered in five- and six-week formats to accommodate the complex lives of many adults. For those of you who would like to accelerate the educational process, you'll find numerous intensive courses, which are generally equivalent to two regular courses. These intensives can be found on our schedules almost every night and on weekends, and they are available at a reduced tuition rate. Most recently, we have added the ACCEL program to our offerings. Now available for the BSBA Management, BSBA MIS, and BS Liberal Arts/Business Minor, the ACCEL program gives students the opportunity to complete these degrees primarily on Friday evenings and Saturdays at the Boston and Burlington campuses.

High-Quality Learning

A number of programs carry the extra status of being accredited by external accrediting agencies. The bachelor of science in business administration programs are accredited by the prestigious American Assembly of Collegiate Schools of Business. Most of the health-related programs are also accredited, including the nursing program by the National League for Nursing, the health information administration program by the Commission on Accreditation of Allied Health Education in cooperation with the American Health Information Management Association's Council on Accreditation, and medical laboratory science by the Committee of Allied Health Education and Accreditation of the American Medical Association. These are added insurance that we provide quality programs and excellent instruction. In addition, all academic programs are reviewed regularly, and all faculty are evaluated at least once per year.

Students Who Bring Rich Experiences to Classes

Approximately 12,000 continuous learners come to Northeastern every year to pursue degrees, update careers by working on a certificate, or take courses in a subject that has long interested them. These students range from 18 to 80 and come from all walks of life. All have one thing common: they are making a change in their lives through their own actions and expanding their world by investing in themselves. This diversity is not only a source of stimulation and enrichment for students, faculty, and administration alike, but it also provides the opportunity for students to network within their chosen careers.

Timely and Innovative Degree Preparation

If you are interested in earning a bachelor's degree, programs leading to the Bachelor of Science, Bachelor of Science in Business Administration, and Bachelor of Arts degrees provide opportunities for cultural and professional development equivalent in quality and scope to those offered in the conventional four-year college enrolling full-time students. There are forty-four possible majors from which to choose, including six double majors and three accelerated programs. Among these are five bachelor's degree concentrations in business that carry the extra prestige of full accreditation by the American Assembly of Collegiate Schools of Business.

If you are just starting out in college or have some prior coursework, fifteen practical programs leading to the Associate in Science degree enable you to establish a knowledge base in business administration, criminal justice, health professions and life sciences, or liberal arts.

Bringing New Technology into the Classroom

At Northeastern, we are working hard to bring new technologies into courses, like linking students and instructors via the Internet. You'll notice more and more courses that are "Web-enhanced," meaning that regular classroom work is augmented with assignments on the Internet, or class discussions are linked by computer. In addition, we offer a number of courses in totally distance-learning formats, whether they're televised, broadcast by satellite or microwave, or delivered on-line via the Internet. Each term's *Schedule* points out the courses that emphasize the use of technology in our classrooms.

STUDENT SUPPORT SERVICES

Advising • Career Services • Counseling • Disability Resource Center

Academic Advising

Academic advisors are available by appointment to talk with University College students and prospective students about courses, transfer credit, degree requirements, career counseling referrals, and other matters of individual concern. Persons requiring any support services, such as a sign language interpreter should mention this at the time the appointment is being made. Please refer to information on the Disabilities Resource Center for further information.

For academic advising questions, use e-mail for an answer:
uc-academic-affairs@lynx.dac.neu.edu

To make an appointment at a specific campus, please call the appropriate number, as listed below.

- *Main Boston Campus:* Advisors are available weekdays from 8:30 a.m. to 7 p.m. Call 617.373.2400 or TTY 617.373.2825 (for Deaf or hard of hearing).
- *Burlington Suburban Campus:* Call 617.373.2400. (Note: this is a Boston campus phone number.)
- *Downtown Boston Campus* (89 Broad Street): Call 617.373.8300.
- *All other branch locations:* Advisors are available for scheduled appointments. Call 617.373.2400 for an appointment.

During registration, the advising staff in Boston is available to meet with students on a walk-in basis from 9 a.m. to 7 p.m. Students may also call in with questions during these times. In addition, registration advisors are available at satellite campuses during most registration hours to assist students with course selection and to explain registration procedures.

Continuing Education students in non-credit programs may obtain academic advising services through the program managers and faculty academic coordinators. Students in the following programs should contact the phone numbers listed to obtain these services.

- State-of-the-Art, Building Design and Management, and Environmental Health and Safety: Call 781.320.8052.
- Financial Services Programs—Certified Financial Planner (CFP®), Certified Financial Analyst and Automobile Damage Appraisal: Call 617.373.7972.
- Paralegal Professional Program: Call 617.373.7682.
- Business Performance Series: Call 617.373.2418.
- Nursing Professional Advancement: Call 617.373.2818.
- Public History: Call 617.373.2416.

Tutorial Services

University College offers tutorial assistance in several subjects. Tutoring, which is on a one-to-one basis, provides an opportunity for student and tutor to focus on specific problems that might not have been covered during class time. You may request tutorial information from the Office of Academic and Student Affairs, 617.373.8300. A flyer describing tutorial services is also available at all campus locations.

Course Planning Events

Whether you are thinking of enrolling in University College or are already attending class in Boston or at one of our suburban campuses, you have many course planning program options.

- *Open House Programs*
If you are thinking about enrolling in University College for the first time, you are encouraged to attend an Open House. Open Houses introduce potential students to the many University College programs and services designed to meet educational, job-related, and personal needs. They also orient new students to the University as a whole and address concerns that many adult, part-time students have about transfer credit, international student applications, course selection, career decision making, admission to degree programs, certificate programs, and financial aid.

Students currently enrolled in University College are also invited to attend an Open House. Details appear in the *Schedule*.

- *Advising/Transfer Nights* are specifically designed for those new and potential students with prior college coursework to be transferred to University College, new students with no prior college, and current students with course selection questions or issues. Transfer students meet with a qualified academic advisor to evaluate prior college credit and receive a temporary transfer award so that the student is aware of what and how the course credits earned at other colleges will apply toward a chosen degree at University College. Students who do not have prior college credits to be transferred will meet with a registration advisor who will answer questions on course selection, admissions, and any petitions that may need to be filed on the students behalf.

Career Services

The workplace has undergone tremendous change in the last several years, and the phenomenon of change continues to accelerate. At publication, employment is at a 30-year high, with organizations challenged to attract and retain talented employees. Global competition remains intense while the health of our economy is interconnected with that of the world economies. Computer and telecommunication technologies continue their explosive growth, and many other employment sectors are also booming. Mergers and acquisitions are breaking all previous records. Downsizing and re-engineering continue to alter work settings while the increased use of contract workers has changed the very definition of employment.

Meanwhile, the work force is undergoing its own transformation. Having learned hard lessons at the start of the decade, workers feel less secure in their jobs, even in good times. With employment no longer guaranteed, workers now seek other rewards for their labor. Many insist on performing meaningful work: work that is personally satisfying, work that makes a contribution to society. They also want work that is challenging and provides opportunity to learn. In addition, with their work loads having increased as a result of previous downsizing and re-engineering, workers struggle to achieve and maintain balance in their lives.

Career Development Courses

With all the changes that have occurred in the workplace, the responsibility for managing one's career has landed squarely with the individual. Success in today's market requires continuously updated skills, an entrepreneurial spirit, a customer orientation, and a network of contacts. University College offers several credit courses in career development to prepare adults for the workplace of the 21st century. In these courses, described on pp. 126-127 of this *Bulletin*, students develop valuable skills to manage careers over their lifespan.

Career Services

A team of four counselors trained in the career transition needs of adults is available for all University College students. Recent trends (including global economy, downsizing, new technology, and outsourcing) have changed the world of work. The ability to anticipate, prepare for, and manage change will determine your career success. For information about available services, contact:

Northeastern University
Department of Career Services
P.O. Box 895
Boston, MA 02117
617.373.2430

www.dac.neu.edu/coop.careerservices/

Location: 101 Stearns Center, Main Boston Campus

Office Hours: Sept.-June: 8:30 a.m.-4:30 p.m., Monday-Friday

Summer Quarter: 8:00 a.m.-5:00 p.m., Monday and Thursday

Evening Hours: open until 7:00 p.m. most Tuesday and Wednesday evenings throughout the year for counseling appointments and general use of print, video, and computer resources.

On-Line Services

During the past year, the Department of Career Services has greatly expanded its on-line services for students and alumni/ae. The services and information listed below are available through our Web site: www.dac.neu.edu/coop.careerservices

- register for seminars
- review companies recruiting on campus (for students earning a bachelor's or master's degree in the current academic year)
- read about the job opportunities at companies recruiting on campus
- peruse current job listings to which you can apply directly
- identify local professional associations
- link to a vast array of career sites available on the Internet
- download department handouts and seminar material

Career Counseling

Career counseling is available to help matriculated students make sound career decisions and timely career moves. Depending on individual needs, career counseling might include planning a career or a career change, making decisions, setting short- and long-term goals, developing effective job search strategies, or participating in videotaped mock interviews. Students decide with the counselor whether they need one or more sessions. Career counseling is by appointment in Boston, Dedham, Downtown Boston at Batterymarch, or Burlington and may be arranged by calling 617.373.2430, TTY 617.373.2432.

Career Resource Center

The Career Resource Center, located in 103 Stearns, provides a variety of services and resources:

- computer access to on-line job search resources available on the Internet, including our alumni/ae network
- a book collection containing occupational information, resume and interviewing resources, job search guides, and directories of employers and graduate schools
- a Job Bank containing current local, national, and international job opportunities and internships
- employer videos and, for companies recruiting on campus, files containing annual reports, product information, and descriptions of their entry-level positions and training programs
- daily walk-in hours for assistance with resumes and correspondence

Seminars

Whether you are a seasoned job hunter or a beginner, seminars are designed to prepare you to compete effectively in today's market. Meeting the demands of the current marketplace, seminar topics include self-assessment, the latest in job search strategies, advanced interviewing techniques and salary negotiation, and building an international career. Seminars are offered during day and evening hours throughout the year.

Evening seminars take place in Boston and Burlington and are announced in classes prior to the start of each series. Current seminar offerings are also listed on our home page on the World Wide Web. Students who wish to participate in these seminars must reserve a place by calling the Department of Career Services at 617.373.2428, TTY 617.373.2432. www.dac.neu.edu/coop.careerservices

Career Expos and Networking Events

Each year Career Services provides an extensive array of workshops, networking events, and symposia in the spring quarter. This annual tradition invites students and alumni/ae to put the spotlight on their careers, assess their level of satisfaction with work, and explore new possibilities. Themes such as balancing work and other aspects of life, the changing expectations of employers, and redefining success challenge us to think in new ways. Included among the events is the annual Career Expo, a job fair attracting more than 200 participating companies and organizations. At the Career Expo, you can learn about immediate employment opportunities or talk informally about future career options. University College students are encouraged to attend these events. Employers are searching for experienced as well as entry-level candidates.

All students receiving a bachelor's degree in the current academic year are eligible to interview with organizations recruiting on campus. Organizations typically range from larger international corporations to smaller non-profit organizations. The fall and winter recruiting seasons attract 300 employers who conduct more than 3,000 interviews. Names of participating employers and descriptions of their positions can be found on our home page. Students planning to participate in on-campus recruiting must attend an orientation during the first week of the quarter. Contact the office for details.

On-Line Job Listings

The Department of Career Services has entered into a partnership with JOBTRAK, an on-line service that connects employers with potential candidates to fill job openings. JOBTRAK is used by more than 200,000 employers, 500 college career centers, and millions of students and alumni/ae. The JOBTRAK Web site is located at www.jobtrak.com. For the password giving you access to job listings targeted to Northeastern University, call 617.373.2430.

www.neu.edu/coop.careerservices/

Northeastern National Career Network

The Northeastern National Career Network (NNCN) is a voluntary organization of Northeastern alumni/ae and other professional affiliates who are willing to share information on their career fields. NNCN members offer insight into industry trends, their own career experiences, an overview of their fields, and information on job opportunities. Whether you are an undergraduate trying to focus on your career direction or an alumnus/alumna or graduate student making a career change, NNCN members are an extremely valuable source of information and contacts. Access NNCN through our home page or visit the Career Resource Center, 103 Stearns.

For additional information, contact the Department of Career Services at 617.373.2430, TTY 617.373.2432.

The Counseling Center

Students can receive confidential counseling to address personal, educational, or career concerns. Assistance is available to all students during days and some evening hours at the Counseling Center. For information and appointments, call 617.373.2142 or drop in at 302 Ell Building. *All services are free.*

Individual and Group Counseling

People come to the Center for help with a variety of personal concerns. Anxiety and depression, academic problems, personal or family relationship problems, drug and alcohol abuse, and sexual concerns are among the issues that University College students may want to discuss with a professional therapist. The Center is committed to short-term therapy, with a maximum of twelve counseling sessions per year. If the Center cannot meet your needs, appropriate referrals are provided. The Center also offers a number of therapy groups that help students to address relationship and interpersonal problems. All counseling is confidential and protected to the full extent of the law. The Center does not provide services that require court testimony or involve litigation.

Alcohol and Other Drug Education

The Counseling Center houses the Alcohol and Other Drug (AOD) Education Office, which encourages responsible decision making regarding AOD use and promotes a community free from the negative effects of substance abuse. Various peer education and awareness groups, such as Peers Reaching Out (PRO) Theatre Troupe, assist in this process.

Career Counseling and Testing

Whether you are considering a career change, pursuing new employment as a result of downsizing, wishing to develop new job skills for the changing workplace, or seeking assistance in choosing a career, counseling and testing services at the Counseling Center may help you. Testing typically focuses on interests, abilities, and personality.

Educational Programming

The Center staff is also available to present programs on topics, including Stress Management, Assertiveness Training, Time Management, Adult Children of Alcoholics (ACOA)/Family Issues, Acquaintance Rape Prevention, Gay/Lesbian/Bisexual/Transgender Issues, Listening Skills, Crisis Intervention/Suicide Prevention, Alternative Healing/Holistic Health, Meditation/Self-Hypnosis, Dating/Healthy Relationships, and Growing Up Divorced. Videotapes on Study Skills and Procrastination may be viewed at the Center.

National Testing

The Center administers many national tests. The MATs are given weekly, CLEP exams twice monthly, and DANTES exams once monthly. The automated testing line, which operates 24 hours/day, allows potential test applicants to receive recorded information and to order registration materials for these tests. This number is 617.373.7939. MAT, CLEP, and DANTES information, including the testing schedule, common questions and answers, and registration information, is also available on the Counseling Center Web site at: <http://www.neu.edu/counselingcenter/nts.html> This Web site also has links to sites that provide information on GMAT, GRE, LSAT, the Praxis Series, and TOEFL.

The Disability Resource Center

The Disability Resource Center's (DRC) mission within the University is to enable people with disabilities or who are Deaf or hard of hearing equal access to higher education via support services and advocacy. The Center provides support services on an individual basis. Accommodations include but are not limited to orientation, advocacy, and academic and general counseling.

Students are encouraged to contact the DRC two months prior to attending classes, in order to begin the registration process. Prior to receiving services, individuals who have both visible and hidden disabilities or who are Deaf or hard of hearing must voluntarily request to register their disability-related needs by opening a file with the DRC. Registering with the DRC is done by providing the DRC with recent diagnostic documentation of the disability or hearing loss. During the Center's registration process, services are individually designed to meet the student's needs. Support services are available for the following groups' needs but are not limited to students who are learning disabled, students who are head injured, students who have mobility disabilities or are wheelchair users, students who are Deaf or hard of hearing, students who are blind or visually disabled, students with degenerative or chronic conditions, and students with psychological disabilities.

Call 617.373.2675 or TTY 617.373.2730 for assistance.

www.neu.edu/counselingcenter/nts.html

BUSINESS ADMINISTRATION DEGREE PROGRAMS

Meet the Challenge: Conducting Business in the 21st Century

Northeastern University is nationally accredited by the AACSB-International Association for Management Education, the most prestigious accrediting organization of university business programs in the United States. This accreditation helps to ensure the highest possible level of quality standards. It ultimately means more credibility to employers and graduate schools alike, and that translates into more opportunities once you complete your program.

University College business programs are taught by skilled full-time Northeastern faculty or experienced business professionals from such companies as Arthur Anderson, Compaq, Fidelity Investments, Polaroid Corp., Raytheon Company, and numerous other reputable organizations. This wealth of experience creates an exciting and challenging learning environment that ensures a connection with real-world applications.

Innovative programming is enhanced by personal attention. The average class size is less than twenty students, yet students have the benefit of name recognition, quality faculty, extensive facilities, and career placement and advising services that can be provided only by a large university.

Todd J. Leach
*Assistant Dean, Director,
Business Administration Programs*

Agnes Jordan
*Associate Director,
Business Administration Programs*

Lisa Gruccio
*Assistant Director,
Business Administration Programs*

270 Ryder Hall
617.373.2418, 617.373.2419
617.373.2825 (TTY)

Program Consultants

ACC: Accounting

Consultant: Professor Paul A. Janell
(College of Business Administration)
(617.373.4645)

Associate Consultant (Accounting Principles): Walter E. Kearney, Jr.
(Director of Operations, University College) (617.373.8306)

BL: Business Law

Consultant: Thomas J. Ahern, Esq.
(617.426.4211)

FI: Finance

Consultant: Professor Jonathan Welch
(College of Business Administration)
(617.373.5961)

Associate Consultant: Joseph Stanford
(781.383.9299)

Associate Consultant:
Robert T. Trimper (978.443.6518)

HRM: Human Resources Management

Consultant:
Professor Brendan Bannister
(College of Business Administration)
(617.373.2503)

Associate Consultant:
Kenneth C. Solano (617.373.5664)

MGT: Management

Consultant: Professor James E. Molloy
(College of Business Administration)
(617.373.4812)

Associate Consultant:
Tricia McConville (508.256.7894)

MIS: Management Information Systems

Consultant: Robert A. Parsons
(College of Business Administration)
(617.373.4749)

Associate Consultant (Introduction):
Agnes Jordan (617.373.2418)

Associate Consultant (Programming):
Stephen P. Maher (781.335.2568)

Associate Consultant (Computer Systems Specialist Programs):

Bryan D. Craven (978.762.6306)

Associate Consultant

(Network Technology):

Jawdat Mansour (508.337.4616)

MKT: Marketing

Consultant: Professor Dan T. Dunn, Jr.
(College of Business Administration)
(617.373.4563)

Associate Consultant: Ronald J. McBrien
(617.373.4745)

OM: Operations Management, Operations Technology, and Purchasing

Consultant: Professor Robert A. Parsons
(College of Business Administration)
(617.373.4749)

Associate Consultant:
Stephen F. Armstrong
(508.281.2000 x2519)

RE: Real Estate

Consultant: Peter Flynn
(617.233.2284)

TRN: Logistics and Transportation

Consultant: Professor James F. Molloy
(College of Business Administration)
(617.373.4812)

Start with an Associate's Degree

Through a core of professional business courses and a well-balanced sequence of liberal arts courses, students in the associate in science degree programs acquire specialized knowledge for future managerial growth.

To receive the associate's degree, a student must successfully complete the 87 quarter hours of course credit specified for the degree. Students who have completed a certificate program may then enroll in an associate's degree program. (Although credits earned in a certificate program may be applied toward this degree, completion of a certificate program is not required.)

Students who wish to earn one of the associate in science degrees in business and who have not earned 80 quarter hours of credit are required to enroll in the Open Business courses listed on page 16.

The final examinations of certain Open Business courses (see asterisked courses on page 16) are used for course validation in the Bachelor of Science in Business Administration (BSBA) Degree programs. The students in these classes must earn a "C" or above in the final validating examination for the course to be accepted in the BSBA program. Please consult the course instructor or call 617.373.2418 or 617.373.2419 for further details.

Associate's degrees are offered in the following areas:

Business Administration

- Accounting (page 17)
- Business Administration (page 18)
- Finance (page 20)
- Human Resources Management (page 21)
- Logistics and Transportation (page 21)
- Management Information Systems (page 24)
- Marketing (page 26)
- Operations Management (page 27)
- Purchasing and Materials Management (page 29)

Bachelor of Science in Business Administration: BSBA Degree

University College's Bachelor of Science in Business Administration degree is fully accredited by the American Assembly of Collegiate Schools of Business, indicating that the programs meet the accrediting agency's standards for faculty and student quality, curriculum design, and overall University support.

University College offers a Bachelor of Science in Business Administration degree with concentrations in these areas:

- Accounting (page 17)
- Electronic Commerce (page 19)
- Finance (page 20)
- Management (page 22)
- Management Information Systems (page 24)
- Marketing (page 26)

The Bachelor of Science in Business Administration degree programs of University College are designed for men and women seeking to prepare themselves for managerial responsibility in business, government, and other organizations, with the goal of developing the ability to recognize and solve problems and to understand the role of the business firm in the community, the nation, and the world. In developing these skills, students have the opportunity to gain not only a broad understanding of business and organizational problems through specialized courses but also first-hand knowledge from effective full-time College of Business Administration professors as well as working professionals who are also teachers.

To ensure the well-rounded background that is so valuable in the business world, the college combines its business curriculum with courses from the sciences, humanities, and social sciences.

After the coursework foundation is completed (see "Planning Your Program of Study Toward a Bachelor of Science in Business Administration Degree"), the various functional areas of business are emphasized, and students concentrate their studies in specific areas. (Detailed descriptions of these areas follow this section.) In most of these upper-level courses, the traditional lecture-and-recitation format is supplemented by problem-solving and case-study methods in which students analyze actual businesses and business problems and present recommendations for possible solutions.



ACCEL, the premier accelerated program for adults in the Boston region, will enable students to speed up the study of their Management BSBA, MIS BSBA, or BS Liberal Arts with Business Minor. If you have relevant transfer credit or take College Level Examination Program (CLEP) examinations in certain subjects, you can finish even faster.

The **ACCEL** program is very flexible. You can start the program at any point. This way, if you have completed an associate's degree program, have other transfer credit, or can take CLEP examinations for certain subjects, you will have a head start, or a lighter course load in an academic quarter.

The program is offered on the Boston and Burlington campuses on Friday nights and Saturday mornings with the exception of the Summer quarter, when the schedule reverts to the Monday through Thursday evening format. Many of the courses in the program are offered at a reduced tuition rate.

Please call 617.373.2400 or TTY 617.373.2825 to request a brochure explaining the **ACCEL** program.

Planning Your Program of Study Toward a BSBA

Students who plan to work toward the Bachelor of Science in Business Administration degree should submit transcripts of previously completed college-level coursework and a Transfer Credit Petition to the Office of Academic and Student Affairs. (Transfer Credit Petitions may be requested by calling 617.373.2400 or TTY 617.373.2825. Petitions are also available at all campus locations.) Students will receive by mail a transfer credit evaluation and a suggested plan of study to prepare for admission to this program. When this paperwork has been completed, students are encouraged to schedule an appointment to discuss their programs with an academic advisor.

Admissions Application Procedure

Students who do not have any academic courses that may be transferred from another educational institution or program should meet with an academic advisor early in their studies at University College. All students are required to complete 80 quarter hours of credit, including English courses ENG 4100, ENG 4101, and ENG 4102; mathematics courses MTH 4110 and MTH 4111; and a social science elective from the course list that follows. This coursework must be completed prior to application for admission to the BSBA degree program (may include transfer credit).

Once students have met these requirements, they should complete an Admissions Application to the Bachelor of Science in Business Administration Degree program and return it to the Office of Academic and Student Affairs to initiate the admissions process. This application may be obtained at all campus locations or by calling 617.373.2400 or TTY 617.373.2825.

Admission to the BSBA degree program is restricted to students who have maintained a 2.0 cumulative quality-point average at University College and completed a minimum of 80 quarter hours of credit.

Students should choose their 80 quarter hours of credit from the recommended lower-level course list that follows:

ACC 4101	ACC 4102	ACC 4103	Accounting Principles 1, 2, 3
BL 4101	BL 4102		Law 1, 2
CMN 4101			Fundamentals of Human Communication
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3
ECN 4250	ECN 4251		Statistics 1, 2
ENG 4100	ENG 4101		Critical Writing 1, 2
ENG 4102			Critical Writing Workshop
ENG 4380	ENG 4381		Writing for the Professions 1, 2
HST 4103			The Civilization of the Modern World

One History course from the following:

(HST 4101, 4102, 4201, 4202, 4203, 4600 through 4646)

MGT 4101	MGT 4102	Introduction to Business and Management 1, 2
MIS 4114		Introduction to PC Software
MIS 4115		Introduction to Computers and Information Systems
MTH 4110	MTH 4111	Contemporary Algebra 1, 2
PHL 4100		Philosophical Thinking
PSY 4110		Introduction to Psychology: Fundamental Issues

One Psychology elective (PSY)

SOC 4100	Roles, Culture, and the Individual
SOC 4101	Inequality and Institutions

or

SOC 4102	Institutions and Social Change
----------	--------------------------------

3 quarter hours of a natural science elective (BIO, CHM, or ESC)

CD 4100 Managing Career Decisions—strongly suggested elective

On-Line Courses

A limited number of business and information systems courses are available on-line. These courses use Internet technology and require students to have access to a Windows 95 computer with Internet connectivity and e-mail. For more information, call the Business Programs office at 617.373.2419; TTY 373.2825.

Special Studies

University College offers a variety of Special Studies. These courses give students an opportunity to earn credits in Advanced Tutorials, Independent Studies, and Honors Programs for Business. Consult course descriptions on pages 117-180.

University College/ New England College of Finance Articulation Agreement

To keep pace with the professional challenges that bankers face today, particularly in the area of technology, University College and New England College of Finance (NECF) have developed an articulation agreement for the admission of NECF's students into University College's Bachelor of Science in Business Administration degree. Graduates of NECF's associate's degree program will have all their credits with a grade of C or above transfer into the BSBA MIS concentration. In addition, other concentrations may also be considered under this agreement.

New England College of Finance students interested in transferring into a U.C. Bachelor of Science degree should contact an academic advisor at University College at 617.373.2400; TTY 617.373.2825.

Special Requirements for BSBA Degree Programs

The following procedures ensure that University College's BSBA programs conform to AACSB standards:

1. Reserved and Open Courses

Business courses in the BSBA programs are classified as either *Reserved* or *Open*. Reserved courses are upper-level and are restricted to students who have enrolled in the BSBA degree program. To be qualified to register for a Reserved course, the student must have earned a total of 80 or more credits (including transfer credits). Reserved courses are offered at the Boston, Burlington, Dedham, Framingham, Weymouth, and Downtown campuses. A student may register for an Open course anytime, providing he or she has fulfilled the prerequisites.

The final examinations of certain Open Business courses (see asterisked courses, next column) are used for course validation in the Bachelor of Science in Business Administration (BSBA) degree programs. The students in these classes must earn a "C" or above in the final validating examination for the course to be accepted in the BSBA program. Please consult course instructor or call 617.373.2418 or 617.373.2419 for further details.

2. Validation

Validation is the term used to describe procedures that test whether an Open course completed at the lower division of a bachelor's program should be accepted for transfer credit into the upper division of an AACSB-approved bachelor's degree program. There are three approved validation methods:

- **Sequential Course.** Students who enroll in a Bachelor of Science in Business Administration degree program can validate a course taken at University College or elsewhere by successfully completing a course that is sequential to the course already completed. The sequential course must be taken in a Reserved section. For example, successful completion of *Organizational Behavior 2* in a Reserved course can validate *Organizational Behavior 1*, regardless of where the student completed *Organizational Behavior 1*.

tional Behavior 1, regardless of where the student completed *Organizational Behavior 1*.

- **College-Level Examination Program (CLEP) and/or Regents College Examination (formerly PEP).** These standard examinations can be used to validate some previously taken upper-level Business courses.

- **Departmental Examination.** In cases where a sequential course does not exist or is not desired by a student, and no appropriate CLEP or Regents College examination exists, validation can be accomplished through a departmental examination.

Required upper-level courses are listed as follows under Reserved and Open sections.

OPEN BUSINESS COURSES

Open Business courses are available on an open enrollment basis as long as the stated prerequisites are met.

ACC 4301	Intermediate
ACC 4302	Accounting
ACC 4307	1, 2, 3
ACC 4310	Cost Accounting 1
FI 4301	Principles of Finance*
FI 4302	Financial Management*
FI 4310	Investment Principles
FI 4320	Credit Principles
FI 4325	Budgeting and Planning
HRM 4301	Organizational
HRM 4302	Behavior 1*, 2*
HRM 4304	Organizational Behavior
	1 & 2 (Intensive)*
HRM 4310	Human Resources
	Management *
MIS 4301	Structured Systems
MIS 4302	Analysis and Design 1, 2
MIS 4305	Structured Systems
	Analysis and Design
	(Intensive)
MIS 4307	Communications and
	Networking
MKT 4301	Introduction to
MKT 4302	Marketing 1*, 2*
MKT 4310	Advertising Management 1
MKT 4315	Professional Selling Skills
MKT 4320*	Marketing Management

*The final examinations of these Open Business courses are used for course validation in the Bachelor of Science in Business Administration (BSBA) degree programs. The students in these classes must earn a "C" or above in the final validating examination for the course to be accepted in the BSBA program.

RESERVED BUSINESS COURSES

The courses below are offered for students in the Bachelor of Science degree programs and for those students who have earned 80 quarter hours of college credit. Please note appropriate course prerequisites.

ACC 4400	Accounting Information Systems
ACC 4408	Intermediate Accounting 4
ACC 4411	Cost Accounting 2
ACC 4425	Auditing
ACC 4426	1, 2
ACC 4440	Federal Income
ACC 4441	Taxes 1, 2
FI 4403	Financial Strategy
FI 4411	Investment Management
FI 4421	Credit Management
FI 4426	Financial Control
FI 4450	International Finance
HRM 4415	Leadership
MGT 4410	Project Management
	Process: Planning and Implementation
MGT 4446	International Business
	Management and Operations
MGT 4450	Business Policy
MGT 4451	1**, 2**
MGT 4452	Business Policy (Intensive)**
MGT 4455	Manager and Society
MIS 4445	Database Management
	Systems
MIS 4446	Information Systems for
	Management
MIS 4475	Electronic Commerce
	Strategy
MIS 4485	Applied MIS
	Development Project
MKT 4411	Advertising Management 2
MKT 4416	Strategic Sales
	Management
MKT 4430	Marketing
MKT 4431	Research 1, 2
MKT 4453	International Marketing
MKT 4457	Competitive Strategy
OM 4404	Service Operations
	Management

**Must have 130 q.h. to register.

Accounting



The field of accounting offers numerous opportunities for careers within business and non-business organizations. In addition, it is a crucial activity with which managers and administrators alike should be familiar. Opportunities within the accounting profession itself vary from tax specialist to auditor and include positions that range from entry-level junior accountants to chief financial officers.

Accounting Associate in Science Degree (Major Code 470)

The accounting associate degree provides students with an accounting and business foundation that can assist students in obtaining entry-level positions in both accounting and management. Students may choose to transfer directly from the associate's to bachelor's degree program upon completion. Students may also opt to earn an Accounting Certificate while they work on degree requirements (see p. 77).

Accounting Bachelor of Science in Business Administration (BSBA) Degree (Major Code 460)

The BSBA in accounting is built on a solid base of business and liberal arts courses that provides the breadth of knowledge necessary to function in today's diverse environment. This program meets the rigorous national accreditation standards of the AACSB, the premier accrediting organization for business. Students will also focus on accounting specific topics, such as cost accounting and auditing.

Accounting AS Degree

Core Courses			quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2	8
ENG 4102		Critical Writing Workshop	2
MTH 4110	MTH 4111	Contemporary Algebra 1, 2	6
ECN 4115	ECN 4116	Economic Principles	
ECN 4117		and Problems 1, 2, 3	9
PSY 4110		Introduction to Psychology:	
		Fundamental Issues	3
BL 4101	BL 4102	Law 1, 2	6
FI 4301		Principles of Finance	3
HRM 4301	HRM 4302	Organizational Behavior 1, 2	6
MGT 4101	MGT 4102	Introduction to Business	
		and Management 1, 2	6
MIS 4114		Introduction to PC Software	3
MIS 4115		Introduction to Computers	
		and Information Systems	3
Accounting Major Concentration Courses			
ACC 4101	ACC 4102	Accounting Principles	
ACC 4103		1, 2, 3	9
ACC 4301	ACC 4302	Intermediate Accounting	
ACC 4307		1, 2, 3	9
ACC 4310		Cost Accounting 1	3
Non-Business Electives			11
Total Quarter Hours			87

*HRM 4301, 4302, and MGT 4446 together fulfill the University diversity requirement.

Accounting BSBA Degree

All courses listed for the AS degree plus the following:

ENG 4380	ENG 4381	Writing for the Professions 1, 2	6
ECN 4250	ECN 4251	Statistics 1, 2	6
HST 4103		The Civilization of the	
		Modern World	3
One History course from the following:			
		(HST 4101, 4102, 4201, 4202, 4203, 4600 through 4646)	3
PHL 4100		Philosophical Thinking	3
One Psychology elective (PSY)			
SOC 4100		Roles, Culture, and the Individual	3
SOC 4101		Inequality and Institutions	3
or			
SOC 4102		Institutions and Social Change	3
CMN 4101		Fundamentals of Human	
		Communication	3
FI 4302		Financial Management	3
MGT 4446		International Business	
		Management and Operations*	3
MGT 4450	MGT 4451	Business Policy 1*, 2	6
MIS 4236		Advanced PC Software	3
MKT 4301		Introduction to Marketing 1	3
OM 4404		Service Operations Management	3
Accounting Major Concentration Courses			
ACC 4408		Intermediate Accounting 4	3
ACC 4411		Cost Accounting 2	3
ACC 4425	ACC 4426	Auditing 1, 2	6
ACC 4440	ACC 4441	Federal Income Taxes 1, 2	6
ACC 4400		Accounting Information Systems	3
Electives			
		Natural Science elective (BIO, CHM, or ESC)	3
		Open electives	6
		Business elective	3
Total Quarter Hours			174

*Students must complete 130 q.h. and all other Business Administration core courses before enrolling in Business Policy 1.

Suggested: Take ENG 4384 *Workshop in Case Study Analysis* as an elective before taking MGT 4450 and other upper-level Reserved courses.

Double Concentration: It is now possible to pursue a double concentration in Accounting/Finance (Major Code 413). Make an appointment to see an academic advisor to map out a course plan, obtain a status report, or change your major to this double concentration.

Business Administration Associate in Science Degree (Major Code 401)



The Business Administration associate's degree provides students with a broad overview of business and feeds into any University College BSBA degree. This allows students the opportunity to learn more about the various disciplines within business before they decide on a particular area of specialization. Once students complete their associate's degree, they may transfer directly into the AACSB-accredited BSBA degree of their choice.

Core Courses

			quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2	8
ENG 4102		Critical Writing Workshop	2
MTH 4110	MTH 4111	Contemporary Algebra 1, 2	6
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3
PSY 4110		Introduction to Psychology: Fundamental Issues	3

Business Administration Major Concentration Courses

ACC 4101	ACC 4102	ACC 4103	Accounting Principles 1, 2, 3	9
BL 4101	BL 4102		Business Law 1, 2	6
FI 4301			Principles of Finance	3
FI 4302			Financial Management	3
HRM 4301	HRM 4302		Organizational Behavior 1, 2	6
HRM 4310			Human Resources Management	3
MIS 4114			Introduction to PC Software	3
MIS 4115			Introduction to Computers and Information Systems	3
MKT 4301			Introduction to Marketing 1	3
MGT 4101	MGT 4102	MGT 4103	Introduction to Business and Management 1, 2, 3	9

Non-Business Electives 11

Total Quarter Hours 87

Electronic Commerce Bachelor of Science in Business Administration Degree (Major Code 466)



Electronic commerce has rapidly become standard business practice for both small and large organizations across a variety of industries and continues to grow at exponential rates. In addition, electronic commerce offers numerous entrepreneurial opportunities. The BSBA in Electronic Commerce is designed to provide students with the knowledge and skills necessary to take full advantage of the potential electronic commerce has to enhance and expand business operations. The program is based on a solid business curriculum with a strong liberal arts foundation.

Core courses			quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2	8
ENG 4102		Critical Writing Workshop	2
MTH 4110	MTH 4111	Contemporary Algebra 1, 2	6
ENG 4380	ENG 4381	Writing for the Professions 1, 2	6
CMN 4101		Fundamentals of Human Communication	3
ECN 4115	ECN 4116	Economic Principles and Problems 1, 2, 3	9
ECN 4250	ECN 4251	Statistics 1, 2	6
HST 4103		The Civilization of the Modern World	3
One History course from the following:		(HST 4101, 4102, 4201, 4202, 4203, 4600 through 4646)	3
PHL 4100		Philosophical Thinking	3
PSY 4110		Introduction to Psychology: Fundamental Issues	3
One Psychology elective (PSY)			3
SOC 4100		Roles, Culture, and the Individual	3
SOC 4101		Inequality and Institutions	(3)
or		or	
SOC 4102		Institutions and Social Change	(3)
MIS 4114		Introduction to PC Software	3
MIS 4115		Introduction to Computers and Information Systems	3
MIS 4238		Introduction to the Internet	3
MIS 4236		Advanced PC Software	3
ACC 4101	ACC 4102	Accounting Principles 1, 2, 3	9
BL 4101	ACC 4103	Law 1	3
FI 4301		Principles of Finance	3
FI 4302		Financial Management	3
HRM 4301	HRM 4302	Organizational Behavior 1,* 2*	6
MGT 4101	MGT 4102	Introduction to Business and Management 1, 2	6
MGT 4446		International Business Management and Operations*	3
MGT 4450	MGT 4451	Business Policy 1,** 2	6
MKT 4301		Introduction to Marketing 1	3
OM 4404		Service Operations Management	3
Electronic Commerce Major Concentration Courses			
MGT 4410		Project Management Process	3
MIS 4239		HTML/CGI Programming	3
MIS 4245		Net Security and Legal Issues	3
MIS 4255		Electronic Commerce	3
MIS 4301	MIS 4302	Structured Systems and Design 1, 2	6
MIS 4307		Communications and Networking	3
MIS 4445		Database Management Systems	3
MIS 4475		Electronic Commerce Strategy	3
MKT 4305		Internet Marketing	3
Electives			
Open electives			20
Business elective			3
Natural Science elective (BIO, CHM, or ESC)			3
Total Quarter Hours			174

*HRM 4301, 4302, and MGT 4446 together fulfill the University diversity requirement.

**Students must complete 130 q.h. and all other Business Administration core courses before enrolling in Business Policy 1.

†Completion of Continuing Education non-credit program in the State-of-the-Art Program may lead to eligibility of 18 q.h. of non-Business elective credits in the Electronic Commerce BSBA degree. Call the Office of Academic and Students Affairs at 617.373.2400, TTY 373.2825 to discuss how to petition.

Suggested: ENG 4384 *Workshop in Case Study Analysis* before taking MGT 4450 and other upper-level Reserved courses that require writing about cases.



Bank mergers, day-trading, and the global economy are just a few of the dynamics currently drawing attention to the field of finance. Positions in finance cut across a wide array of industries. The finance industry itself has experienced a great deal of growth over the past several years as new investment opportunities have opened up and both individuals and companies alike have placed greater emphasis on managing their finances. University College finance programs can prepare individuals for exciting new careers or can strengthen their managerial abilities.

Finance Associate in Science Degree (Major Code 476)

The challenging and fast-paced world of finance offers many career opportunities within both financial industries and finance departments of large companies. The Associate of Science in Finance degree provides students with a broad base of skills and knowledge that can be used to obtain an entry-level position or as a base on which to build. Students who complete this degree may transfer directly into the Finance BSBA degree and enhance their career opportunities even further. Students may also opt to earn a Finance Certificate while they work on degree requirements (see p. 78).

Finance Bachelor of Science Degree in Business Administration (BSBA) Degree (Major Code 433)

The BSBA in Finance degree is built on a solid foundation of business and liberal arts courses that provide the breadth of knowledge essential to a business career in today's dynamic environment. This program meets the rigorous national accreditation standards of AACSB, the premier accreditation for business-related programs. In addition to the strong general base of skills, students will focus on specialized financial topics, such as credit management and international finance.

Finance AS Degree

Core Courses		quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2
ENG 4102		Critical Writing Workshop
MTH 4110	MTH 4111	Contemporary Algebra 1, 2
ECN 4115	ECN 4116	Economic Principles and Problems 1, 2, 3
PSY 4110		Introduction to Psychology: Fundamental Issues
ACC 4101	ACC 4102	Accounting Principles 1, 2, 3
BL 4101	BL 4102	Law 1, 2
HRM 4301	HRM 4302	Organizational Behavior 1, 2
MGT 4101	MGT 4102	Introduction to Business and Management 1, 2
MIS 4114		Introduction to PC Software
MIS 4115		Introduction to Computers and Information Systems
MIS 4236		Advanced PC Software
Finance Major Concentration Courses		
FI 4301		Principles of Finance
FI 4302		Financial Management
FI 4310		Investment Principles
FI 4320		Credit Principles
FI 4325		Budgeting and Planning
Non-Business Electives		
Total Quarter Hours		87

Finance BSBA Degree

All courses listed for the AS degree plus the following:

Core Courses		quarter hours
ECN 4250	ECN 4251	Statistics 1, 2
One Psychology elective (PSY)		3
ENG 4380	ENG 4381	Writing for the Professions 1, 2
SOC 4100		Roles, Culture, and the Individual
SOC 4101		Inequality and Institutions (3)
<i>or</i>		<i>or</i>
SOC 4102		Institutions and Social Change (3)
CMN 4101		Fundamentals of Human Communication
HST 4103		The Civilization of the Modern World
One History course from the following:		
(HST 4101, 4102, 4201, 4202, 4203, 4600 through 4646)		3
PHL 4100		Philosophical Thinking
MGT 4446		International Business Management and Operations*
MKT 4301		Introduction to Marketing 1
OM 4404		Service Operations Management
MGT 4450	MGT 4451	Business Policy 1**, 2
Finance Major Concentration Courses		
FI 4403		Financial Strategy
FI 4411		Investment Management
FI 4421		Credit Management
FI 4426		Financial Control
FI 4450		International Finance

Electives	
Natural Science elective (BIO, CHM, or ESC)	3
Open electives	18
Business elective	3

Total Quarter Hours 174

*HRM 4301, 4302, MGT 4446 together fulfill the University diversity requirement.

**Students must complete 130 q.h. and all other Business Administration core courses before enrolling in Business Policy 1. Suggested: Take ENG 4384 *Workshop in Case Study Analysis* as an elective before taking MGT 4450 and other upper-level Reserved courses.



Double Concentration: It is now possible to pursue a double concentration in Accounting/Finance (Major Code 413). Make an appointment to see an academic advisor to map out a course plan, obtain a status report, or change your major to this double concentration.

Human Resources Management Associate in Science Degree (Major Code 477)



The rapidly changing and increasingly complex workplace has created a variety of opportunities within the field of human resources. The Human Resources Management Associate of Science degree is designed to provide students with an understanding of all the major functions of human resources, along with a broad base of management skills. The program prepares students for numerous entry-level positions, as well as provides a base of liberal arts and business courses that can be applied toward the BSBA degree.

Core Courses			quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2	8
ENG 4102		Critical Writing Workshop	2
MTH 4110	MTH 4111	Contemporary Algebra 1, 2	6
ECN 4115	ECN 4116	Economic Principles and	
ECN 4117		Problems 1, 2, 3	9
PSY 4110		Introduction to Psychology:	
		Fundamental Issues	3
ACC 4101	ACC 4102	Accounting Principles 1, 2	6
BL 4101		Law 1	3
MGT 4101	MGT 4102	Introduction to Business	
		and Management 1, 2	6
MIS 4114		Introduction to PC	
		Software	3
MIS 4115		Introduction to Computers	
		and Information Systems	3
MKT 4301		Introduction to Marketing 1	3
MIS 4236		Advanced PC Software	3
Human Resources Management		Major Concentration Courses	
HRM 4301	HRM 4302	Organizational	
		Behavior 1, 2	6
HRM 4310		Human Resources	
		Management	3
HRM 4321		Wage and Salary	
		Administration	3
HRM 4322		Employee Benefits	3
HRM 4325		Training and Development	3
HRM 4333		Employment Rights	3
HRM 4348		The Changing Work Force	3
Non-Business Electives			8
Total Quarter Hours			87

Logistics and Transportation Associate in Science Degree (Major Code 482)



Logistics and Transportation is one of the most rapidly expanding fields in business today. All companies, from the Fortune 500 manufacturer to the small retail firm, have a logistics department that determines inventory policy, manages warehousing needs, and decides modes of transportation to be used for the distribution of products and materials. Courses in the Logistics and Transportation associate's degree address operations and distribution issues related to local and international shippers and carriers and financial and legal issues concerning the transportation service consumer. Corporations and companies (carriers) that sell transportation services seek out individuals who are skilled in the area of logistics and transportation. Carrier companies include the airlines, railroads, trucking companies, and urban transit systems. Students may also consider administrative positions in companies and agencies involved in transportation infrastructure. On completion of the Logistics and Transportation associate's degree, students may consider pursuing a bachelor's degree in finance, marketing, or another functional area.

Core Courses			quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2	8
ENG 4102		Critical Writing Workshop	2
MTH 4110	MTH 4111	Contemporary Algebra 1, 2	6
ECN 4250	ECN 4251	Statistics 1, 2	6
ECN 4115	ECN 4116	Economic Principles and	
ECN 4117		Problems 1, 2, 3	9
ACC 4101	ACC 4102	Accounting Principles 1, 2	6
MGT 4101	MGT 4102	Introduction to Business	
		and Management 1, 2	6
MKT 4301		Introduction to Marketing 1	3
MIS 4114		Introduction to PC Software	3
MIS 4115		Introduction to Computers	
		and Information Systems	3
OM 4301		Introduction to Operations	
(formerly IM 4301)		Management	(3)
or		or	
OM 4404		Service Operations	
		Management*	(3)
OM 4325		Business Decision	
(formerly MS 4325)		Models	3
Logistics and Transportation Major Concentration Courses			
TRN 4301		Elements of	
		Transportation	3
TRN 4302		Introduction to Logistics	3
TRN 4304		Advanced Logistics	3
Transportation electives			12
Non-Business Electives			8
Total Quarter Hours			87

*See page 168 for prerequisites. Take as one of last courses in AS program after acquiring 80 q.h.

Management



The success of every organization is determined largely by the effectiveness of its management. Planning, organizing, leading, and controlling are all functions of management. University College Management programs are all intended to teach students how to maximize the effectiveness of these functions, as well as how to take a systems approach to management that integrates these various functions in a way that is appropriate to the particular situation.

Management Bachelor of Science in Business Administration Degree (Major Code 463)

The BSBA in Management builds on a strong base of business and liberal arts skills that provides the breadth of knowledge essential to today's dynamic and challenging business environment. In addition, students will obtain practical and effective skills for managing both people and situations. This program meets the national accreditation requirements of the AACSB, the premier accreditation organization for business programs.

Core Courses			quarter hours	Management Major Concentration Courses		
ENG 4100	ENG 4101	Critical Writing 1, 2	8	HRM 4415	Leadership	3
ENG 4102		Critical Writing Workshop	2	MGT 4410	Project Management Process:	
MTH 4110	MTH 4111	Contemporary Algebra 1, 2	6		Planning and Implementation	3
ENG 4380	ENG 4381	Writing for the Professions 1, 2	6	MGT 4446	International Business	
ECN 4115	ECN 4116	Economic Principles and			Management and Operations*	3
ECN 4117		Problems 1, 2, 3	9	MGT 4455	Manager and Society	3
ECN 4250	ECN 4251	Statistics 1, 2	6	MKT 4320	Marketing Management 1	3
HST 4103		The Civilization of the Modern		MIS 4446	Information Systems for	
		World	3		Management	3
One History course from the following:				MGT 4450	MGT 4451	Business Policy 1**, 2
		(HST 4101, 4102, 4201, 4202, 4203, 4600 through 4646)	3			
PHL 4100		Philosophical Thinking	3	Electives		
PSY 4110		Introduction to Psychology:		Natural Science elective (BIO, CHM, or ESC)		
		Fundamental Issues	3	Open electives		
One Psychology elective (PSY)			3	Business electives		
SOC 4100		Roles, Culture, and the		Total Quarter Hours		
		Individual	3	174		
SOC 4101		Inequality and Institutions	(3)	*HRM 4301, 4302, and MGT 4446 together fulfill the University diversity		
or		or		requirement.		
SOC 4102		Institutions and Social Change	(3)	**Students must complete 130 q.h. and all other Business Administration core		
CMN 4101		Fundamentals of Human		courses before enrolling in Business Policy 1.		
		Communication	3	Suggested: ENG 4384 <i>Workshop in Case Study Analysis</i> before taking MGT		
ACC 4101	ACC 4102	Accounting		4450 and other upper-level Reserved courses that require writing about cases.		
ACC 4103		Principles 1, 2, 3	9			
BL 4101	BL 4102	Law 1, 2	6			
FI 4301		Principles of Finance	3			
FI 4302		Financial Management	3			
HRM 4301	HRM 4302	Organizational Behavior 1*, 2*	6			
HRM 4310		Human Resources Management	3			
MGT 4101	MGT 4102	Introduction to Business and				
MGT 4103		Management 1, 2, 3	9			
MIS 4114		Introduction to PC Software	3			
MIS 4115		Introduction to Computers and				
		Information Systems	3			
MIS 4236		Advanced PC Software	3			
MKT 4301		Introduction to Marketing 1	3			
OM 4404		Service Operations Management	3			



Double Concentration: It is now possible to pursue double concentrations in Management/Marketing (Major Code 454) or Management/Management Information Systems (Major Code 459). Make an appointment to see an academic advisor to map out a course plan, obtain a status report, or change your major to one of these double concentrations.



Management BSBA Program Schedule for 1999-2000 at the Boston and Burlington Campuses.

↓ Year → Term	Fall 1999	Winter 2000	Spring 2000	Summer 2000
first year	Friday, 5:50-10:15 MGT 4105 6 q.h. Saturday, 9:00-12:45 ENG 4100 4 q.h.	Friday, 5:50-10:15 ACC 4105 6 q.h. Saturday, 9:00-12:45 ENG 4101 4 q.h.	Friday, 5:50-10:15 MIS 4116 6 q.h. Saturday, 9:00-11:10 ENG 4102 2 q.h. Saturday, 11:20-1:30 ACC 4103 3 q.h.	1st five-week term HRM 4304 6 q.h. 2nd five-week term CMN 4101 3 q.h. MGT 4103 3 q.h.
second year	Boston, Friday, 5:15-9:35 MTH 4114 6 q.h. Boston, Saturday, 9:00-1:30 BL 4105 6 q.h. Burlington Friday, 5:50-10:15 BL 4105 6 q.h. Burlington Saturday, 9:00-1:30 MTH 4114 6 q.h.	Friday, 6:00-9:00 and Saturday, 9:00-12:30 ECN 4118 9 q.h.	Friday, 5:50-10:15 PSY 4114 6 q.h. Saturday, 9:00-11:10 FI 4301 3 q.h. Saturday, 11:20-1:30 MKT 4301 3 q.h.	1st five-week term HRM 4310 3 q.h. 2nd five-week term FI 4302 3 q.h. 2nd five-week term Business elective 3 q.h. (if needed)
third year	Friday, 5:50-10:15 ECN 4254 6 q.h. Saturday, 8:30-1:00 1st half of term, Burlington MGT 4455 3 q.h. Saturday, 9:00-1:30 2nd half of term, Burlington MIS 4236 3 q.h. Saturday, 9:00-1:30 1st half of term, Boston MIS 4236 3 q.h. Saturday, 8:30-1:00 2nd half of term, Boston HRM 4415 3 q.h.	Friday, 5:50-10:15 SOC 4104 6 q.h. Saturday, 9:00-1:30 1st half of term, Burlington MKT 4320 3 q.h. Saturday, 8:30-1:00 1st half of term, Boston MGT 4455 3 q.h. Saturday, 9:00-1:30 2nd half of term, Boston MKT 4320 3 q.h. Saturday, 8:30-1:00 2nd half of term Burlington HRM 4415 3 q.h.	Friday, 5:50-10:15 ENG 4383 6 q.h. Saturday, 9:00-1:30 1st half of term, Burlington Business elective 3 q.h. Saturday, 8:30-1:00 2nd half of term, Burlington OM 4404 3 q.h. Saturday, 8:30-1:00 1st half of term, Boston OM 4404 3 q.h. Saturday, 9:00-1:30 2nd half of term, Boston Business elective 3 q.h.	1st five-week term Burlington: Science elective 3 q.h. 2nd five-week term Burlington MGT 4452 6 q.h. 1st five-week term Boston MGT 4452 6 q.h. 2nd five-week term Boston Science elective 3 q.h.
fourth year	Friday, 5:50-10:15 Elective 6 q.h. or Friday, 2nd half of term Elective 3 q.h. Saturday, 9:00-11:10 or 11:20-1:30 Elective 3 q.h. Boston, Monday, 5:30-7:40 or Burlington, Tuesday, 5:50-8:00 MGT 4410 3 q.h.	Friday, 5:50-8:00 Elective 3 q.h. Saturday, 9:00-11:10 HST 4103 3 q.h. Saturday, 11:20-1:30 PHL 4100 3 q.h. Boston, Wednesday 5:50-8:00 or Burlington, Monday, 8:10-10:20 MGT 4446 3 q.h.	Friday, 5:50-8:00 Elective 3 q.h. and/or Saturday, 9:00-11:10 or 11:20-1:30 Elective 3 q.h. Elective 3 q.h. Burlington, Wednesday, 5:50-8:00 MIS 4446 3 q.h. Boston, any day/time. Elective 3 q.h.	Full ten-week term History Elective 3 q.h. 1st five-week term Elective 3 q.h. 2nd five-week term Boston MIS 4446 3 q.h. Burlington Elective 3 q.h.

Management Information Systems



University College is at the leading-edge of MIS education. These programs undergo a process of constant review by industry practitioners and experts. Whether you have just purchased your first computer or are striving to become the chief information officer of your firm, our programs meet your needs.

Management Information Systems AS Degree (Major Code 475)

Core Courses		quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2 8
ENG 4102		Critical Writing Workshop 2
MTH 4110	MTH 4111	Contemporary Algebra 1, 2 6
ECN 4250	ECN 4251	Statistics 1, 2 6
ECN 4115	ECN 4116	Economic Principles and Problems 1, 2, 3 9
ACC 4101	ACC 4102	Accounting Principles 1, 2 6
FI 4301*		Principles of Finance 3
HRM 4301	HRM 4302	Organizational Behavior 1†, 2 † 6
MGT 4101		Introduction to Business and Management 1 3
OM 4404		Service Operations Management* 3
Management Information Systems Major Concentration Courses		
MIS 4114		Introduction to PC Software 3
MIS 4115		Introduction to Computers and Information Systems 3
MIS 4221	MIS 4222	COBOL Programming 1, 2 (6)
or	or	
MIS 4276	MIS 4277	C Programming 1, 2 (6)
MIS 4236		Advanced PC Software 3
MIS 4273		PC DOS (3)
or	or	
MIS 4282		Operating Systems Overview (3)
MIS 4301	MIS 4302	Structured Systems Analysis and Design 1, 2 6
MIS 4307		Communications and Networking 3
Electives*		8
Total Quarter Hours		87

*See page 168 for prerequisites. Take as one of last courses in AS program after acquiring 80 q.h.

†HRM 4301, 4302, and MGT 4446 together fulfill the University diversity requirement.

††Students must complete 130 q.h. and all other Business Administration core courses before enrolling in Business Policy 1.

Management Information Systems BSBA Degree (Major Code 475)

All courses listed for the AS degree plus the following:

Core Courses		quarter hours
ENG 4380	ENG 4381	Writing for the Professions 1, 2 6
HST 4103		The Civilization of the Modern World 3
One History course from the following: (HST 4101, 4102, 4201, 4202, 4203, 4600 through 4646)		3
PHL 4100		Philosophical Thinking 3
PSY 4110		Introduction to Psychology: Fundamental Issues 3
One Psychology elective (PSY)		3
SOC 4100		Roles, Culture, and the Individual 3
SOC 4101		Inequality and Institutions (3)
or		
SOC 4102		Institutions and Social Change (3)
CMN 4101		Fundamentals of Human Communication 3
BL 4101	BL 4102	Law 1, 2 6
FI 4302		Financial Management 3
MGT 4102		Introduction to Business and Management 2 6
MGT 4446		International Business Management and Operations† 3
MKT 4301		Introduction to Marketing 1 3
MGT 4450	MGT 4451	Business Policy 1††, 2 6

†HRM 4301, 4302, and MGT 4446 together fulfill the University diversity requirement.

††Students must complete 130 q.h. and all other Business Administration core courses before enrolling in Business Policy 1.

Suggested: Take ENG 4384 *Workshop in Case Study Analysis* as an elective before taking MGT 4450 and other upper-level Reserved courses.

Management Information Systems Major Concentration Courses

MGT 4410	Project Management Process: Planning and Implementation 3
MIS 4445	Database Management Systems 3
MIS 4446	Information Systems for Management 3
MIS 4485	Applied MIS Development Project 3

Electives**

Natural Science elective (BIO, CHM, or ESC)	3
Open electives	12
Business elective	3

Total Quarter Hours 174

**Completion of Continuing Education non-credit certificate programs in the State-of-the-Art Program may lead to eligibility of 18 q.h. of non-business credit in the Management Information Systems AS and BSBA degrees. Each certificate is equivalent to 18 q.h. of credit. Contact the Office of Academic and Student Affairs at 617.373.2400 or TTY 617.373.2825 to discuss how to petition.



Double Concentration: It is now possible to pursue a double concentration in Management/Management Information Systems (Major Code 459). Make an appointment to see an academic advisor to map out a course plan, obtain a status report, or change your major to this double concentration.

ACC Management Information Systems BSBA Program Schedule for 1999-2000 at the Boston and Burlington Campuses.

↓Year →Term	Fall 1999	Winter 2000	Spring 2000	Summer 2000
first year	Friday, 5:50-10:15 MGT 4105 6 q.h. Saturday, 9:00-12:45 ENG 4100 4 q.h.	Friday, 5:50-10:15 ACC 4105 6 q.h. Saturday, 9:00-12:45 ENG 4101 4 q.h.	Friday, 5:50-10:15 MIS 4116 6 q.h. Saturday, 9:00-11:10 ENG 4102 2 q.h.	1st five-week term HRM 4304 6 q.h. 2nd five-week term CMN 4101 3 q.h.
second year	Boston, Friday, 5:15-9:35 MTH 4114 6 q.h. Boston, Saturday, 9:00-1:30 BL 4105 6 q.h. Burlington, Friday, 5:50-10:15 BL 4105 6 q.h. Burlington, Saturday, 9:00-1:30 MTH 4114 6 q.h.	Friday, 6:00-9:00 and Saturday, 9:00-12:15 ECN 4118 9 q.h.	Friday, 5:50-10:15 PSY 4114 6 q.h. Saturday, 9:00-11:10 FI 4301 3 q.h. Saturday, 11:20-1:30 MKT 4301 3 q.h.	1st five-week term MIS 4279 6 q.h. 2nd five-week term FI 4302 3 q.h. Business elective 3 q.h.
third year	Friday, 5:50-10:15 ECN 4254 6 q.h. Saturday, 9:00-1:30 1st half of term, Burlington: MIS 4282 3 q.h. Saturday, 9:00-1:30 2nd half of term, Burlington: MIS 4236 3 q.h. Saturday, 9:00-1:30 1st half of term, Boston: MIS 4236 3 q.h. Saturday, 9:00-1:30 2nd half of term, Boston: MIS 4282 3 q.h.	Friday, 5:50-10:15 SOC 4104 6 q.h. Saturday, 9:00-1:30 MIS 4305 6 q.h.	Friday, 5:50-10:15 ENG 4383 6 q.h. Saturday, 9:00-1:30 1st half of term, Burlington: MIS 4307 3 q.h. Saturday, 8:30-1:00 2nd half of term, Burlington: OM 4404 3 q.h. Saturday, 8:30-1:00 1st six half of term, Boston: OM 4404 3 q.h. Saturday, 9:00-1:30 2nd half of term, Boston: MIS 4307 3 q.h.	1st five-week term, Burlington: Science Elective 3 q.h. 2nd five-week term, Burlington: MGT 4452 6 q.h. 1st five-week term, Boston: MGT 4452 6 q.h. 2nd five-week term, Boston: Science elective 3 q.h.
fourth year	Friday, 5:50-10:15 Elective 6 q.h. or Friday, 2nd half of term Elective 3 q.h. Saturday, 11:10 or 11:20-1:30 Elective 3 q.h. Boston, Saturday, 9:00-11:10 MIS 4445 3 q.h. Boston, Thursday, 5:50-8:00 MIS 4485 3 q.h. Boston, Saturday, 11:20-1:30 MIS 4446 3 q.h. Boston, Monday, 5:50-8:00 or Burlington, Tuesday 5:50-8:00 MGT 4410 3 q.h.	Friday, 5:50-8:00 Elective 3 q.h. Saturday, 9:00-11:10 HST 4103 3 q.h. Saturday, 11:20-1:30 PHL 4100 3 q.h. Boston, Wednesday 5:50-8:00 or Burlington, Monday, 8:10-10:20 MGT 4446 3 q.h.	Friday, 5:50-8:00 Elective 3 q.h. Burlington, Monday, 5:50-8:00 MIS 4445 3 q.h. Burlington, Saturday, 11:20-1:30 MIS 4485 3 q.h. Boston, Saturday, 9:00-11:10 and/or 11:20-1:30 Elective 3 q.h. Burlington, Wednesday, 5:50-8:00 MIS 4446 3 q.h. Boston, any day and time: Elective 3 q.h.	Full ten-week term History elective 3 q.h. 1st five-week term Elective 3 q.h. 2nd five-week term Boston: MIS 4446 3 q.h. Burlington: Elective 3 q.h.

Marketing



As companies find themselves in increasingly competitive environments, they are placing a greater emphasis on being customer-oriented and market-driven. As a result, companies are actively seeking managers who are sensitive to market needs and capable of developing responsive marketing strategies. For those seeking to concentrate their careers in marketing specifically, there are an ever increasing number of marketing-related opportunities. Innovations, such as the Internet, are transforming even traditional marketing positions in advertising and sales promotion. The Marketing Associate in Science degree provides students with a broad knowledge of business activities and an in-depth knowledge of the marketing function. Students may choose to transfer from this program directly into the nationally accredited BSBA/Marketing degree. Students may also opt to earn a Marketing Certificate while working on degree requirements (see page 81).

The BSBA in Marketing is built on a solid business and liberal arts foundation that provides the breadth of skills businesses of all types demand. This program meets the rigorous national accreditation standards of AACSB, the premier accreditation for business programs. In addition to the general business foundation, students concentrate their course work on topics that range from advertising management to international marketing.

Marketing AS Degree (Major Code 479)

Core Courses		quarter hours	
ENG 4100	ENG 4101	Critical Writing 1, 2	8
ENG 4102		Critical Writing Workshop	2
MTH 4110	MTH 4111	Contemporary Algebra 1, 2	6
ECN 4115	ECN 4116	Economic Principles and Problems 1, 2, 3	9
ENG 4380		Writing for the Professions 1	3
ACC 4101	ACC 4102	Accounting Principles 1, 2	6
FI 4301		Principles of Finance	3
FI 4302		Financial Management	3
HRM 4301	HRM 4302	Organizational Behavior 1*, 2*	6
MGT 4101	MGT 4102	Introduction to Business and Management 1, 2	6
MIS 4114		Introduction to PC Software	3
MIS 4115		Introduction to Computers and Information Systems	3
Marketing Major Concentration Courses			
MKT 4301	MKT 4302	Introduction to Marketing 1, 2	6
MKT 4308		Direct Response Marketing	3
MKT 4310		Advertising Management 1	3
MKT 4315		Professional Selling Skills	3
MKT 4320		Marketing Management	3
Non-Business Electives			11
Total Quarter Hours			87

Marketing BSBA Degree (Major Code 461)

All courses listed for the AS degree plus the following:

Core Courses		quarter hours	
ENG 4381		Writing for the Professions 2	3
ECN 4250	ECN 4251	Statistics 1, 2	6
HST 4103		The Civilization of the Modern World	3
One History course from the following: (HST 4101, 4102, 4201, 4202, 4203, 4600 through 4646)			3
PHL 4100		Philosophical Thinking	3
PSY 4110		Introduction to Psychology: Fundamental Issues	3
One Psychology elective (PSY)			3
SOC 4100		Roles, Culture, and the Individual	3
SOC 4101		Inequality and Institutions	(3)
or		or	
SOC 4102		Institutions and Social Change	(3)
CMN 4101		Fundamentals of Human Communication	3
BL 4101	BL 4102	Law 1, 2	6
MGT 4446		International Business Management and Operations*	3
MIS 4236		Advanced PC Software	3
OM 4404		Service Operations Management	3
MGT 4450	MGT 4451	Business Policy 1**, 2	6
Marketing Major Concentration Courses			
MKT 4411		Advertising Management 2	3
MKT 4416		Strategic Sales Management	3
MKT 4430		Marketing Research 1	3
MKT 4431		Marketing Research 2	3
MKT 4453		International Marketing	3
MKT 4457		Competitive Strategy	3
Electives			
Natural Science elective (BIO, CHM, or ESC)			3
Open electives			9
Business elective			3
Total Quarter Hours			174

*HRM 4301, 4302, and MGT 4446 together fulfill the University diversity requirement.

**Students must complete 130 q.h. and all other Business Administration core courses before enrolling in Business Policy 1. Suggested: Take ENG 4384 *Workshop in Case Study Analysis* as an elective before taking MGT 4450 and other upper-level Reserved courses.



Double Concentration: It is now possible to pursue a double concentration in Management/Marketing (Major Code 454). Make an appointment with an academic advisor to map out a course plan, obtain a status report, or change your major to this double concentration.

Operations Management Associate in Science Degree (Major Code 491)



As the operations of organizations have become increasingly complex, the need for professionals trained in the latest methods and techniques used in purchasing, distribution, logistics, and other supply-related activities has become more significant. The Associate of Science in Operations Management incorporates the latest thinking in the field of operations, such as the use of technology and the integration of various aspects of operations management.

Core Courses			quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2	8
ENG 4102		Critical Writing Workshop	2
ECN 4115	ECN 4116	Economic Principles and Problems 1, 2, 3	9
ECN 4250	ECN 4251	Statistics 1, 2	6
MTH 4110	MTH 4111	Contemporary Algebra 1, 2	6
ACC 4101	ACC 4102	Accounting Principles 1, 2	6
HRM 4301		Organizational Behavior 1	3
MGT 4101		Introduction to Business and Management 1	3
MIS 4114		Introduction to PC Software	3
MIS 4115		Introduction to Computers and Information Systems	3
Operations Management Major Concentration Courses			
OM 4325 (formerly MS 4325)		Business Decision Models*	3
OM 4301		Introduction to Operations Management	(3)
or		or	
OM 4404		Service Operations Management**	(3)
OM 4314		Productivity Enhancement and Quality	3
OM 4321 (formerly PUR 4321)		Operations Planning and Control	3
OM 4351 (formerly PUR 4351)		Introduction to Purchasing	3
OM 4396 (formerly PUR 4396)		Systems and Technologies	3
TRN 4302		Introduction to Logistics	3
Non-Business Electives			17
Total Quarter Hours			87

*Not a prerequisite for OM 4404.

**See page 168 for prerequisites. Take as one of the last courses in AS program after acquiring 80 q.h.

Operations Technology Bachelor of Science Degree (Major Code 492)



The Operations Technology degree provides students with a flexible platform from which they can integrate a liberal arts base with a technical specialization. Students may choose the Information Systems track, or they may develop their own interdisciplinary focus.

Graduates of science, engineering technology, liberal arts, or other selected programs at Northeastern University; community colleges; or other similar colleges and institutions who have an associate's degree or its equivalent may transfer applicable credits toward the degree requirements of the baccalaureate program in Operations Technology. **No more than 44 quarter hours of Business Administration credits may be applied toward the bachelor's degree in Operations Technology.** Students choosing the Information Systems track should consult with an academic advisor to ensure compliance with this requirement.

Core Courses			quarter hours	Information Systems Track†† (optional)		
ENG 4100	ENG 4101	Critical Writing 1, 2	8	This track of Operations Technology combines the strong liberal arts and operations base with the latest topics in information technology. To fulfill the requirements of this track, students must complete six of the following courses, which are all considered non-Business:		
ENG 4102		Critical Writing Workshop	2			
ECN 4115	ECN 4116	Economic Principles and Problems 1, 2, 3	9			
ECN 4250	ECN 4251	Statistics 1, 2	6			
MTH 4110	MTH 4111	Contemporary Algebra 1, 2	6			
PSY 4110		Introduction to Psychology: Fundamental Issues	3			
One Psychology elective (PSY)			3			
SOC 4100		Roles, Culture, and the Individual	3			
SOC 4101		Inequality and Institutions	(3)			
or	or					
SOC 4102		Institutions and Social Change	(3)			
Diversity Requirement						
<i>Take one of the following:</i>						
CMN 4231, CMN 4235, SOC 4325, SOC 4154, SOC 4170, SOC 4177, SOC 4178			(3)			
ACC 4101	ACC 4102	Accounting Principles 1, 2	6	MIS 4221	MIS 4222	COBOL Programming 1, 2 (6)
BL 4101	BL 4102	Law 1, 2	6	MIS 4238		Introduction to the Internet (3)
HRM 4301		Organizational Behavior 1	3	MIS 4239		HTML/CGI Programming (3)
MGT 4101		Introduction to Business and Management 1	3	MIS 4241		Programming in BASIC 1 (3)
MIS 4114		Introduction to PC Software	3	MIS 4243		Visual Basic Programming (3)
MIS 4115		Introduction to Computers and Information Systems	3	MIS 4244		Advanced Visual Basic (3)
Operations Technology Major Concentration Courses				MIS 4276	MIS 4277	C Programming 1, 2 (6)
OM 4404		Service Operations Management*	(3)	MIS 4278		C++ for C Programmers (3)
or	or			MIS 4283		Introduction to Windows Programming (3)
OM 4301		Introduction to Operations Management	(3)	MIS 4285		Web Publishing (3)
OM 4314		Productivity Enhancement and Quality	3	MIS 4286		JAVA Programming (3)
OM 4325 (formerly MS 4325)		Business Decision Models**	3	MIS 4321	MIS 4322	UNIX 1, 2 (6)
OM 4351 (formerly PUR 4351)		Introduction to Purchasing	3	MIS 4346		SQL: Introduction to Structured Query Language (3)
OM 4321		Operations Planning and Control	3	MIS 4360		Computer Privacy and Security (3)
OM 4396 (formerly PUR 4396)		Systems and Technologies	3	Total Quarter Hours		
TRN 4302		Introduction to Logistics	3	174		
Non-Business electives† (such as Science, Engineering Technology, Liberal Arts, or Criminal Justice)††			83	*Prerequisite: 80 q.h. of credit.		
				**Not a prerequisite for OM 4404.		
				†Students should consult with an advisor to plan the use of their course electives and to ensure that they do not exceed the maximum allowable proportion of Business credits. Students must be especially careful not to elect courses that use an MIS prefix and are considered business in nature.		
				††Completion of Continuing Education non-credit certificate programs in the State-of-the-Art Program may lead to eligibility of 18 q.h. of non-Business credit in the Management Information Systems AS and BSBA degrees. Each certificate is equivalent to 18 q.h. of credit and is considered non-Business. Contact the Office of Academic and Student Affairs to discuss petition: 617.373.2400 or TTY 617.373.2825.		

Purchasing and Materials Management Associate in Science Degree (Major Code 431)



The purchasing function within organizations has gone through dramatic changes in recent years. An emphasis on efficiency has brought about innovations such as MRP and JIT. Along with these innovations is an increased emphasis on quality. The Purchasing and Materials Management Associate in Science degree provides students with an in-depth knowledge of the latest concepts and tools being used in the field of purchasing, along with a broad business foundation.

Core Courses			quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2	8
ENG 4102		Critical Writing Workshop	2
MTH 4110	MTH 4111	Contemporary Algebra 1, 2	6
ECN 4250	ECN 4251	Statistics 1, 2	6
ECN 4115	ECN 4116	ECN 4117 Economic Principles and Problems 1, 2, 3	9
ACC 4101	ACC 4102	Accounting Principles 1, 2	6
HRM 4301		Organizational Behavior 1	3
MGT 4101	MGT 4102	Introduction to Business and Management 1, 2	6
MIS 4114		Introduction to PC Software	3
MIS 4115		Introduction to Computers and Information Systems	3
MKT 4301		Introduction to Marketing 1	3
OM 4301 (formerly IM 4301)		Introduction to Operations Management	(3)
or		or	
OM 4404		Service Operations Management*	(3)
OM 4325 (formerly MS 4325)		Business Decision Models	3

Purchasing and Materials Management Major Concentration Courses

OM 4321	Operations Planning and Control	3
OM 4351 (formerly PUR 4351)	Introduction to Purchasing	3
OM 4357 (formerly PUR 4357)	Business Negotiations	3
OM 4358 (formerly PUR 4358)	Materials Requirements Planning	3
OM 4370 (formerly PUR 4370)	Inventory Management	3
OM 4390 (formerly PUR 4390)	Just-In-Time Manufacturing (JIT)	(3)
or	or	
OM 4395 (formerly PUR 4395)	Master Production Scheduling	(3)
or	or	
OM 4396 (formerly PUR 4396)	Systems and Technologies	(3)

Non-Business Electives 8

Total Quarter Hours 87

*See page 168 for prerequisites. Take as one of last courses in AS program after acquiring 80 q.h.

CRIMINAL JUSTICE DEGREE PROGRAMS

Challenged by random street crime, urban terrorism, white collar crime, computer hacking, workplace violence, and economic espionage, today's criminal justice professionals have been forced to deal with crimes of a modern society that is defined by technology, laws, and social mores which seem, in a way, to change almost every day. As a result, we have a current-day criminal justice system that is not only complex but also more demanding of its professionals than ever before.

University College's programs in criminal justice are uniquely designed to help criminal justice professionals rise to the challenges of today's complex system. Based on the knowledge that the most effective criminal justice system reflects a changing society, Northeastern's programs are clearly the MOST WANTED, not only because they address that change head-on with cutting-edge information but also because they rely on real-life experience from faculty members who are themselves criminal justice experts—people working on the streets, in the crime labs, in courts, in the prisons, behind the computers, and in all facets of this exciting and growing field called criminal justice.

As Associate in Science degree program in Criminal Justice is offered for those who wish to obtain a general background in corrections, policing, and security and who may later wish to pursue a bachelor's degree. Candidates for the AS degree must complete a minimum of 87 quarter hours of credit. This is one half of the requirements for the bachelor of science degree. Students may also opt to earn a Computer Crime and Security Certificate while fulfilling degree requirements (see p. 101).

Students are advised to complete the core courses and the major concentration courses first. Students are also advised to mix electives with Criminal Justice courses rather than saving all of the Criminal Justice courses to the end of the program. All of the AS course requirements fold into the University College's bachelor's degree program, which allows flexibility to choose from four specialized tracks in areas related to your own academic and professional goals: corrections, policing, security, and general criminal justice. The tracks are optional, and a list of recommended courses is available from the Office of Academic and Student Affairs, 180 Ryder Hall. The Minor in Business administration (44 q.h.) is available (see p. 48). The BS degree is also conducive to Criminal Justice associate degree transfer from other schools.

Rose A. Doherty, Assistant Dean,
Director, Criminal Justice Program

Nancy Bandoian,
*Assistant to the Director,
Criminal Justice Program*

266 Ryder Hall,
617.373.2423
617.373.4126 (TTY)

Program Consultant

Prof. John F. McDevitt
College of Criminal Justice
617.373.3327

Criminal Justice AS Degree (Major Code 951)



Core courses		quarter hours
ENG 4100	ENG 4101 Critical Writing 1,2	8
ENG 4102	Critical Writing Workshop	2
HST 4203	American History Since 1917	3
MIS 4114	Introduction to PC Software	3
POL 4103	Introduction to Politics	3
PSY 4110	Introduction to Psychology: Fundamental Issues	3
SOC 4100	Roles, Culture, and the Individual*	3
PHL 4100	Philosophical Thinking	3
Criminal Justice Major Concentration Courses:		
CJ 4101	Administration of Criminal Justice	3
CJ 4103	Criminology 1	3
CJ 4108	Criminal Law	3
CJ 4109	Criminal Procedure	3
CJ 4114	Introduction to Law 1	3
CJ 4215	Policing in a Democratic Society	3
CJ 4301	American Correctional System	3
CJ 4403	Introduction to Security	3
Electives		
Criminal Justice electives		9
Open electives		26
<i>(HST 4563 History of Criminal Justice in America is recommended)</i>		
Total Quarter Hours		87

Criminal Justice BS Degree (Major Code 950)



All courses listed for the AS degree plus the following:

		quarter hours
ECN 4115	ECN 4116 Economic Principles and Problems 1, 2, 3	9
ECN 4117	The Civilization of the Ancient and Medieval Worlds*	3
HST 4101	The Civilization of the Early Modern World*	(3)
HST 4102		
or	or	
HST 4103	The Civilization of the Modern World*	(3)
MTH 4110	MTH 4111 Contemporary Algebra 1, 2	6
POL 4313	State and Local Government	3
PSY 4111	Introduction to Psychology: Developmental Aspects	(3)
or	or	
PSY 4112	Introduction to Psychology: Personal Dynamics	(3)
SOC 4101	Inequality and Institutions*	(3)
or	or	
SOC 4102	Institutions and Social Change*	(3)
SOA 4325	Cultures of the World* (BIO, CHM, ESC, or PHY)	3
Criminal Justice Major Concentration Courses:		
SOC 4320	Statistics for Social Sciences**	3
SOC 4331	Research Methods: Generating and Investigating Research Problems**	3
Electives		
Criminal Justice electives†		21
Open electives***		24
Total Quarter Hours		174

*Fulfills the University diversity requirement.

**Students who anticipate using quantitative methods are advised to take the full Research Methods sequence: SOC 4320, 4331, and 4333.

***Up to 44 q.h. allowed in Business subjects. Minor in Business Administration recommended. (See p. 48.)

†Contact the Office of Academic and Student Affairs (617.373.2400; TTY 373.2825) for information about corrections, policing, security, or general Criminal Justice tracks.

HEALTH PROFESSIONS AND SCIENCES DEGREE PROGRAMS

Shirley M. Russo, Ph.D.
*Assistant Dean and Director,
Health Professions and Sciences Programs*

266 Ryder Hall
617.373.5796, 617.373.2818
617.373.2825 (TTY)
617.373.2325 (fax)

Program Directors and Coordinators

Program directors, consultants, and the Director of Health Professions and Sciences Programs have overall responsibility for the academic quality of the health and sciences programs in their areas of specialty. *The program directors and consultants serve as the primary academic advisors for students in their programs.*

Health Professions

EMS: Paramedic Technology
Program Director: David Rayne
(University College) (781.238.8400)

**HIA: Health Information
Administration**
Program Director:
Annalee Collins, M.Ed., RRA
(University College) (617.373.2525)

Cancer Data Management
Associate Consultant:
Dianne V. Hultstrom, ART, CTR
(978.897.5330)

Medical/Clinical Coding
Contact: Annalee Collins, M.Ed., RRA
(University College) (617.373.2525)

HMG: Health Management
Consultant: Joseph McNabb, Ph.D.
(Labouré College)
(617.296.8300, ext. 4022)

HSC: Health Science
Consultant: Nancy Warner, M.S.
(Bouvé College of Health Sciences)
(617.373.3320)

MLS: Medical Laboratory Science
Program Director: Barbara Martin, M.H.P.
(Bouvé College of Health Sciences)
(617.373.3664)

NUR: Nursing
Consultant: Lea A. Johnson, M.S.,
M.S., M.S.N., R.N.
(School of Nursing
Bouvé College of Health Sciences)
(617.373.3129)

Clinical Assignments

Clinical assignments are available for students whose programs require applied study in a clinical setting. Clinical practice is conducted at healthcare facilities in the greater Boston area. Arrangements must be made with the program's clinical coordinator at least one full quarter in advance.

Most clinicals require liability insurance and a health clearance. Students should check with the clinical coordinator of the program for exact details.

Students who accept clinical assignments in healthcare facilities are expected to adhere to the requirements of the facilities, which are outside University control.

Special Studies

University College offers a variety of Special Studies. These courses give students an opportunity to earn credits in Advanced Tutorials, Independent Studies, Honors Programs, Field Work and faculty-directed Research Projects. Consult descriptions on page 219. Students should be aware that special criteria exist for certain courses; therefore, the course description should be consulted.

Life Sciences

BIO: Biology
Consultant: Edward Jarroll, Ph.D.
(College of Arts and Sciences)
(617.373.2260)
Biology Coordinator: Adrian Gilbert, M.S.
Biology Laboratory Coordinator:
Kevin Mautte, M.S. (617.373.2260)
Biology Laboratory Preparators:
Microbiology: Peter Al-Achi, M.S.
(617.373.2260)
General Biology: John Kelly, B.S.
(617.373.2260)
Anatomy and Physiology:
Jesse P. Parks, B.S.
(617.373.2260)

BIO: Biotechnology
Consultant: Michael E. Drues, Ph.D.
(Vascular Science) (508.651.3909)

Non-Degree Support Areas

CHM: Chemistry
Consultant: William M. Reiff, Ph.D.
(College of Arts and Sciences)
(617.373.2381)
Assistant Coordinator: Jean Cathron
(College of Arts and Sciences)
(617.373.2824)
Chemistry Laboratory Preparators:
Chemistry Principles:
Edward Witten, Ph.D. (617.373.2822)
Organic Chemistry:
Noralie Barnett, B.S. (617.373.2822)

ESC: Earth Science
Consultant: Peter Rosen, Ph.D.
(College of Arts and Sciences)
(978.686.6101, ext. 3352)
Associate Consultant: Langdon Clough
(The Gallery) (401.823.1280)

MTH: Mathematics
Consultant: Francis X. Finigan, M.Ed.
(Educational Consultant) (617.484.8496)

Biological Science

Modern biology is integrative in the sense that a biological question may be studied from fields as diverse as biochemistry and behavior, and from different vantage points, ranging from molecules to whole organisms and even ecosystems. Biologists tend to be well rounded in the sciences, since solving biological questions draws on all of the basic sciences. Some bioscientists work on multidisciplinary teams that tackle several aspects of the same problem, whereas others specialize in basic or applied bioresearch. Basic research is pure science motivated by the need to answer questions about how organisms function or evolve. It is often curiosity-driven and it allows scientists to create new knowledge. Basic research is extremely important to society because it fosters the development of new theories—conceptual frameworks that help scientists understand and explain the natural world. Applied research is characterized by the application of concepts and is driven by the need to solve problems that are often of immediate concern to society, medicine, or industry.

Biologists are hired by industries involved in the development and application of new products, such as biological testing kits, food production and genetic engineering, health-related consumer products, pesticide production, and pharmaceutical sales and production. Federal governmental agencies employ biologists in the Bureau of Land Management, Environmental Protection Agency, Fish and Wildlife Service, National Institutes of Health, National Park Service, National Science Foundation, and Food and Drug Administration. State agencies employ biologists in health departments, natural resource conservation units, water quality and water development groups, forest services, and resource protection authorities. Other employers include zoos and aquaria, environmental firms, museums, private foundations, theme parks, and public and private educational institutions. This degree program also serves as a preparation for graduate degrees in Medicine and Veterinary Science. Embarking on a career in biology has many paths, each with its own rewards and challenges. See the Society for Integrative and Comparative Biology web page for additional information (www.sicb.org/cib/faqs.html).

Biotechnology

The biotechnology industry is one of the fastest-growing industries in the Boston area. The two undergraduate degree programs reflect the industry need for a variety of entry-level positions. The Associate in Science will prepare a graduate to work as a manufacturing technician, an instrument calibration technician, or an assay analyst in the manufacturing and production departments. In regulatory affairs departments, AS graduates work as documentation coordinators. In research and development, these graduates work as media preparation technicians, greenhouse assistants, validation technicians, or animal handlers and technicians.

The Biotechnology Bachelor of Science degree program reflects the emerging areas of specialization in the local, national, and global biotechnology industry. Graduates will be qualified to work in manufacturing and production as manufacturing research associates, process development associates, production planner schedulers, or manufacturing supervisors. In regulatory affairs, BS graduates find positions as regulatory affairs specialists and associates, clinical project managers, quality assurance documentation specialists, compliance specialists, validation engineers, quality control analysts or QC supervisors. In research and development, positions are available as research assistants and associates, plant breeders, clinical coordinators and programmers, clinical data specialists, clinical research associates, and technical writers. All of these entry-level positions require concentrated skills in one or more of the three specialization options outlined in the Biotechnology BS degree program. The biotechnology industry is also giving rise to a large diversity of “spin-off” companies associated indirectly and directly with the industry through pharmaceutical and healthcare partnerships. Career-changers with a background in pharmacy, healthcare, business, or liberal arts (especially critical and technical writing in English and one or more modern language) coupled with this degree would find almost limitless opportunities in this young, globally expanding industry.

more. . .

Biological Science

Bachelor of Science Degree (Major Code 818)



1. Complete these courses first. They are prerequisites for later courses.

	QH
ENG 4100 Critical Writing 1	4
ENG 4101 Critical Writing 2	4
ENG 4102 Critical Writing Workshop	2
MTH 4110 Contemporary Algebra 1	3
MTH 4111 Contemporary Algebra 2	3
MTH 4112 Contemporary Algebra 3	3
BIO 4107/BIO 4110 Biology 1 (Principles)/Lab*	3/1
BIO 4108/BIO 4111 Biology 2 (Diversity)/Lab*	3/1
BIO 4109/BIO 4112 Biology 3 (Animal)/Lab*	3/1
CHM 4133/CHM 4140 Chemical Principles 1/Lab*	3/1
CHM 4134/CHM 4141 Chemical Principles 2/Lab*	3/1
CHM 4135/CHM 4142 Chemical Principles 3/Lab*	3/1
MIS 4114 Introduction to PC Software	3
MIS Language or LN Modern Language	8-9

2. Intermediate-level courses. Require prerequisites from 1.

	QH
PHY 4117/PHY 4196 Physics 1/Lab*	4/1
PHY 4118/PHY 4197 Physics 2/Lab*	4/1
PHY 4119/PHY 4198 Physics 3/Lab*	4/1
BIO 4161/BIO 4165 Human Anatomy & Physiology 1/Lab*	3/1
BIO 4162/BIO 4166 Human Anatomy & Physiology 2/Lab*	3/1
BIO 4163/BIO 4167 Human Anatomy & Physiology 3/Lab*	3/1
BIO 4224 & BIO 4225 Ecology 1 & 2*	6

3. Upper-level courses. Require prerequisites from 1 and 2.

	QH
MTH 4130 Fundamentals of Calculus 1*	3
MTH 4131 Fundamentals of Calculus 2*	3
MTH 4132 Fundamentals of Calculus 3* or ECN 4250 Statistics 1*	3
BIO 4207/BIO 4210 Microbiology 1/Lab*	2/1
BIO 4208/BIO 4211 Microbiology 2/Lab*	2/1
BIO 4235 & BIO 4236 Genetics 1 & 2*	6
BIO 4237 Genetics Lab*	2
BIO 4246 & BIO 4247 Cell Biology 1 & 2*	6
BIO 4248 Cell Biology Lab*	2
CHM 4233/CHM 4237 Analytical Chemistry 1/Lab*	3/1
CHM 4251/CHM 4254 Organic Chemistry 1/Lab*	3/1
CHM 4252/CHM 4255 Organic Chemistry 2/Lab*	3/1
BIO Electives (any BIO courses except BIO 4215/4217 & BIO 4216/4218)	15

4. Complete any time as long as prerequisites are met.

	QH
Psychology or Sociology electives (PSY or SOC)	6
Economics electives (ECN)	9
History electives (HST)	9
Diversity Requirement	
Take one of the following: SOA 4325, SOC 4154, SOC 4170, SOC 4177, SOC 4178	3
General electives as needed to complete total credits	

Total Quarter Hours: 174

*Major Concentration Courses

more...

Biotechnology Degrees

Associate in Science (AS Major Code: 812)

Bachelor of Science (BS Major Code: 813)



Associate in Science Degree

1. Complete these courses first. They are prerequisites for later courses. QH

ENG 4100 Critical Writing 1	4
ENG 4101 Critical Writing 2	4
ENG 4102 Critical Writing Workshop	2
MTH 4110 Contemporary Algebra 1	3
MTH 4111 Contemporary Algebra 2	3
MTH 4112 Contemporary Algebra 3	3
BIO 4107/BIO 4110 Biology 1 (Principles)/Lab*	3/1
BIO 4108/BIO 4111 Biology 2 (Diversity)/Lab*	3/1
BIO 4109/BIO 4112 Biology 3 (Animal)/Lab*	3/1
CHM 4133/CHM 4140 Chemical Principles 1/Lab*	3/1
CHM 4134/CHM 4141 Chemical Principles 2/Lab*	3/1
CHM 4135/CHM 4142 Chemical Principles 3/Lab*	3/1
MIS 4114 Introduction to PC Software	3
BIO 4455 Introduction to Biotechnology*	3

2. Intermediate-level courses. Require prerequisites from 1. QH

BIO 4300 Computer Applications in Science	3
BIO 4207/BIO 4210 Microbiology 1/Lab*	2/1
BIO 4208/BIO 4211 Microbiology 2/Lab*	2/1
BIO 4209/BIO 4212 Microbiology 3/Lab*	2/1
BIO 4513 Production Regulatory Affairs, cGMP * ISO 9000*	3

3. Upper-level courses. Require prerequisites from 1 & 2. QH

BIO 4235 & BIO 4236 Genetics 1 & 2*	6
BIO 4237 Genetics Lab*	2

4. Complete any time as long as prerequisites are met. QH

Open electives as needed to complete total credits

*Major Concentration Courses

Total Quarter Hours: 87

Bachelor of Science Degree

5. All of the courses required for the AS Degree (1, 2, 3, 4) QH

MTH 4520 Critical Thinking for Research	3
BIO 4461 Immunology*	3
BIO 4514 R & D Regulatory Affairs, GLP & Clinical Trials*	3
PHY 4101 and PHY 4102 College Physics 1 & 2*	8
CHM 4238/CHM 4234 Analytical Chemistry 1/Lab*	3/1
CHM 4239/CHM 4235 Analytical Chemistry 2/Lab*	3/1
CHM 4240/CHM 4236 Analytical Chemistry 3/Lab*	3/1
CHM 4251/CHM 4254 Organic Chemistry 1/Lab*	3/1
CHM 4252/CHM 4255 Organic Chemistry 2/Lab*	3/1
CHM 4253/CHM 4256 Organic Chemistry 3/Lab*	3/1
TCC 4337 Writing for the Biotechnology Industry*	3

6. Biotechnology Specializations (Choose 21 q.h. from one option below.) QH

Option 1. Cell & Tissue Culture Specialization (21)	
BIO 4161/4165 Human Anatomy & Physiology 1/Lab	3/1
BIO 4246, BIO 4247, BIO 4248 Cell Biology 1, 2/Lab	6/2
BIO 4515/4519 Bioreactors & Fermentation/Lab	3/1
BIO 4387/4391, BIO 4388/4392 Histology 1 & 2/Lab	6/2
BIO 4605 Prin. Light Microscopy & Histotechnique	3

Option 2. Biomolecular Specialization (21)	
BIO 4511 Introduction to Recombinant DNA	3
BIO 4612 Advanced Recombinant DNA	3
CHM 4321, 4322, 4323 Instrumental Analysis 1, 2, 3	9
BIO 4512/4515 Biomolecular Purification & Downstream Processing/Lab	3/1
BIO 4516/4520 Quality Control & Validation Issues/Lab	3/1
BIO 4510 Introduction to Immunodiagnostics	3

Option 3. Pharmaceutical Specialization (21)	
BIO 4161/4165 Human Anatomy & Physiology 1/Lab	3/1
BIO 4246, BIO 4247, BIO 4248 Cell Biology 1, 2/Lab	6/2
BIO 4425 Endocrinology	3
BIO 4501 Development of New Vaccines	3
HSC 4220, 4601 Basic & Advanced Pharmacology	6
HSC 4301, 4302 Pathophysiology 1 & 2	6

7. Complete any time as long as prerequisites are met. QH

Humanities (ART, ASL, CMN, ENG, INT 4200, JRN, LN, MUS, PHL, TCC, THE)	9
Social Sciences (AFR, ECN, HST, POL, PSY, SOA, SOC)	6
Diversity Requirement. Take one of the following:	
SOA 4325, SOC 4154, SOC 4170,	
SOC 4177, SOC 4178	3
Open electives	4

Total Quarter Hours: 174

Health Information Administration

- Fully accredited by the Commission on Accreditation of Allied Health Education (CAAHEP) in cooperation with the American Health Information Management Association's Council on Accreditation

The Health Information Administrator's varied responsibilities relate to information systems and include the organization, operation, and management of health information services. Required skills for this profession include the ability to design health information and retrieval systems; develop, analyze, and evaluate health records and indexes; work with medical and administrative staffs within healthcare facilities developing methods for evaluation of patient care; conduct research projects using health information; and manage data and information systems for healthcare organizations and enterprises.

Health Information Administrators work in a variety of healthcare settings. More than half are employed by hospitals and ambulatory care facilities as directors, assistant directors, or supervisors of Health Information Departments. Others are employed by government agencies, insurance companies, law firms, and health information programs at colleges and universities. A growing number of Health Information Administrators work for computer companies that market health information software.

The Program

The program may be completed on a part-time or a full-time basis. Although students may begin either program at any time of the year, there are established suggested patterns of courses that begin in either the Summer or Fall quarters of each year.

Students who successfully complete this program are eligible to take the national credential examination conducted by the American Health Information Management Association. Candidates who successfully complete this examination are known as Registered Record Administrators (RRA).

Potential students should schedule a personal interview with the HIA Program Director. Call 617.373.2525 to schedule an appointment.

See also:

- Post-Baccalaureate Certificate Program
page 109
- Cancer Data Management Certificate Program
page 107
- Medical/Clinical Coding Certificate Program
page 110

more. . .

Health Information Administration

Bachelor of Science Degree (Major Code 864)



1. Complete these courses first. They are prerequisites for later courses.

	QH
ENG 4100 Critical Writing 1	4
ENG 4101 Critical Writing 2	4
ENG 4102 Critical Writing Workshop	2
MTH 4110 Contemporary Algebra 1	3
MTH 4111 Contemporary Algebra 2	3
BIO 4107/BIO 4110 Biology 1 (Principles)/Lab	3/1
BIO 4108/BIO 4111 Biology 2 (Diversity)/Lab	3/1
BIO 4161/BIO 4165 Human Anatomy & Physiology 1/Lab*	3/1
BIO 4162/BIO 4166 Human Anatomy & Physiology 2/Lab*	3/1
BIO 4163/BIO 4167 Human Anatomy & Physiology 3/Lab*	3/1
ECN 4115, 4116, 4117 Economic Principles & Problems 1, 2, 3	9
ECN 4250, 4251 Statistics 1, 2	(6)
or	
ECN 4254 Statistics Intensive B	(6)
MIS 4114 Introduction to PC Software	3

2. Intermediate-level courses. Require prerequisites from 1.

	QH
MIS 4236 Advanced PC Software	3
HRM 4301 Organizational Behavior*	3
HMG 4301 Healthcare Delivery Systems*	3
HMG 4215 Health Law*	3
HMG 4400 Healthcare Finance*	3
HSC 4301, 4302 Pathophysiology 1, 2*	6

3. Upper-level courses. Require prerequisites from 1 & 2.

	QH
MIS 4342 Advanced Database*	3
HRM 4310 Human Resource Management*	3
HMG 4411 Research for Managers*	3

4. Professional Specialization

	QH
HIA 4200 Medical Terminology* **	3
HIA 4315, 4316 Health Information Administration 1, 2*	6
HIA 4328, 4329 Nomenclature and Classification 1, 2*	6
HIA 4330 Current Procedural Terminology (CPT)*	3
HIA 4415 Healthcare Quality Management*	3
HIA 4430, 4431 Health Information Management 1, 2*	6
HIA 4500 Health Information Computer Systems*	3
HIA 4520 Topics in Health Information*	3
HIA 4530 Healthcare Systems/Computerized Patient Record Systems*	3
HIA 4335, 4336, 4337 Clinical Practicum 1, 2, 3*†	8

5. Complete any time as long as prerequisites are met.

	QH
Social Science courses of your choice (PSY, HST, SOC, POL)	9
Diversity requirement (take one): SOA 4325, SOC 4154, SOC 4170, SOC 4177, or SOC 4178	3

General electives as needed to complete total credits

Total Quarter Hours: 174

*Specific courses designated in the curricula require a grade of C or better. Only one professional course may be repeated. Students who receive a grade of D in more than one professional course will be withdrawn from the program. A quality-point average of 2.5 is essential in order to enter any of the three clinical courses.

**A challenge examination is available for this course. Call 617.373.2525 for details.

†Liability insurance is required for these courses.

Health Management

Healthcare in greater Boston continues to evolve in the midst of mega-mergers and the growing managed care environment. Medicine is moving to non-hospital sites at a pace that has surprised even veteran insiders. With all of the changes this generates, top managers and administrators are suddenly in high demand. Some industry segments, such as hospitals, are downsizing, but this is actually good news for managers. It's creating a high demand for a new breed of manager who can take over leaner and more business-like offices, departments, and institutions that are facing stiff competition. The people hired into management positions have to be stronger, broader-based leaders who are comfortable in a competitive market. They must have financial acumen and the ability to contain costs and work well with physicians and other professional employees and staff.

The Health Management Bachelor of Science degree program offers practice in all of these skills. The program combines professional competencies with a liberal arts education to help direct students toward entry-level positions of increasing responsibility in health services administration. To prepare graduates for the new business environment of managed care, the program has a solid core in economic principles and problems, accounting and finance, and healthcare financial management. To develop competency in the highly competitive market of managed care, students prepare for leadership roles through courses in psychology, politics, roles and cultures, healthcare marketing and communication, healthcare operations management, and the principles and practices of community health. Their competitive edge is further sharpened with health law, planning and regulation, and a survey of healthcare delivery systems. The curriculum also provides a foundation for graduate studies in MBA and MHA programs, as well as the opportunity to specialize in community health management or general health management. This program design, coupled with Northeastern University's emphasis on an Academic Common Experience that stresses a broad array of skills, contexts, perspectives, and connections, is an ideal combination to produce the kind of healthcare manager currently in high demand in the industry.

Health Science

If you have a strong curiosity about how organisms function in health and disease and a commitment to healthcare with a strong service orientation, this is the perfect degree program for you. As a health science major, you will explore the known and unknown world of science, with an emphasis on its applications in the healthcare environment. This degree balances science and health major cores. In the sciences, you'll study the basic biology and chemistry principles expressed in living organisms, culminating in the structure and function of the human organism in health and disease. In microbiology, you'll explore the external and internal world of microbes and their roles in health and disease. A broad array of biology, chemistry, physics, and mathematics elective courses allows you to design a degree that matches the specific goals you have set for yourself as you enter a career path focusing on the dual worlds of healthcare and applied science. In the health major core, you'll focus on management skills in health services organizations and healthcare delivery systems. You'll also have an opportunity to discover whether you have a gift for teaching. If disease prevention and management are areas of interest, courses in public health, epidemiology, and pathophysiology will prepare you to work in this field.

This degree further provides the opportunity for professional specializations in comprehensive health science, environmental health and safety, and a strong preparation for graduate programs in public health, medicine, pharmacy and life science research. The dual opportunities of this degree are unmatched in any other undergraduate program. If you are attracted to a career in either health or science or both, this degree will give you the background to fine tune and direct your career goals.

Health Management

Bachelor of Science Degree (Major Code 860)



1. Complete these courses first. They are prerequisites for later courses. QH

ENG 4100, 4101 Critical Writing 1 and 2	8
ENG 4102 Critical Writing Workshop	2
MTH 4110 Contemporary Algebra 1	3
MTH 4111 Contemporary Algebra 2	3
MTH 4112 Contemporary Algebra 3	3
HMG 4301 Healthcare Delivery Systems*†	3
HMG 4100 Managing Health Services Organizations 1*†	3
HMG 4101 Managing Health Services Organizations 2*†	3
HMG 4200 Health Science Statistics*	3
HMG 4411 Research for Managers*	3
ECN 4115, 4116, 4117 Economic Principles and Problems 1, 2, 3*	9
ACC 4101, 4102 Accounting Principles 1, 2*	6
MIS 4114 Introduction to PC Software	3
HSC 4310 Public Health 1*†	3

2. Intermediate-level courses. Require prerequisites from 1. QH

HMG 4215 Health Law*	3
HMG 4325 Health Planning & Regulation*	3
HMG 4390 The Patient's Impact on Decision-Making*†	3
HIA 4415 Healthcare Quality Management*	3
FI 4301 Principles of Finance*	3
HMG 4400, 4401 Healthcare Financial Management 1, 2*	6

3. Upper-level courses. Require prerequisites from 1 & 2. QH

HMG 4440 Healthcare Operations Management*	3
HMG 4580 Information Processing in Healthcare*	3
HMG 4445 Healthcare Marketing 1*	3
HMG 4446 Healthcare Marketing 2*	3
HSC 4310 Public Health 1*†	3
HMG 4620 Current Issues in Health Services Management*	3
HMG 4310 Principles & Practices of Community Health 1*	3
HMG 4654 Health Management Practicum* (Students must have completed 130 q.h. before taking this course)	3

*Major Concentration Courses

4. Professional Specializations Choose one of the following options. QH

Option 1. Community Health Management (27)	
HMG 4300 Home Healthcare	3
HMG 4311 Principles & Practices of Community Health 2	3
MLS 4341, 4342 Epidemiology 1, 2	6
HSC 4311 Public Health 2	3

Choose 12 q.h. from the following: HMG, HRM, HSC, MKT, SOC 12

Option 2. General Health Management (27)	
Choose courses from HIA, HMG, HSC, MLS (Acceptable transfer courses may also be used: EMS, NUR, RAD)	15
Choose courses from ECN, ENG, FI, HRM, MGT, POL	12

Option 3. AS Transfer Option to Health Management BS

Requires prior completion of a healthcare professional certification program: for example, Dental Hygiene, Paramedic Technology, MLS, Nursing, Occupational Therapy, Physical Therapy.

5. Complete any time as long as prerequisites are met. QH

SOC 4100 Roles, Culture, and the Individual†	3
PHL 4165 Bioethics†	3
POL 4103 Introduction to Politics	3
PSY 4110 Introduction to Psychology	3

General electives as needed to complete total credits

†These courses together fulfill the University Diversity Requirement

Total Quarter Hours: 174

Health Science

Bachelor of Science (Major Code 865)



- 1. Complete these courses first. They are prerequisites for later courses.** QH
- | | |
|------------------------------------------------------------------|-----|
| ENG 4100, 4101 Critical Writing 1 & 2 | 8 |
| ENG 4102 Critical Writing Workshop | 2 |
| MTH 4110, MTH 4111, MTH 4112
Contemporary Algebra 1, 2, 3 | (9) |
| <i>or</i> | |
| MTH 4130, MTH 4131, MTH 4132
Fundamentals of Calculus 1, 2, 3 | (9) |
| BIO 4107/BIO 4110 Biology 1
(Principles)/Lab* | 3/1 |
| BIO 4108/BIO 4111 Biology 2
(Diversity)/Lab* <i>or</i> | |
| BIO 4109/BIO 4112 Biology 3 (Animal)/
Lab* | 3/1 |
| CHM 4133/CHM 4140 Chemical
Principles 1/Lab* | 3/1 |
| CHM 4134/CHM 4141 Chemical
Principles 2/Lab* | 3/1 |
| CHM 4135/CHM 4142 Chemical
Principles 3/Lab* | 3/1 |
| MIS 4114 Introduction to PC Software | 3 |
- 2. Intermediate-level courses. Require prerequisites from 1.** QH
- Science Major Concentration***
- | | |
|--------------------------------------------------------|-----|
| BIO 4161/4165 Human Anatomy &
Physiology 1/Lab | 3/1 |
| BIO 4162/ BIO 4166 Human Anatomy &
Physiology 2/Lab | 3/1 |
| BIO 4163/BIO 4167 Human Anatomy &
Physiology 3/Lab | 3/1 |
| BIO 4207/BIO 4210 Microbiology 1/Lab | 2/1 |
- Choose 12 q.h. from the following courses:*
- | | |
|---------------------------------------------------------|----|
| BIO 4125 through BIO 4605, CHM 4230
through CHM 4383 | |
| MTH 4121 through MTH 4132, PHY 4101
through PHY 4198 | 12 |
- Health Major Concentration***
- | | |
|---------------------------------------------------------------------------|---|
| HMG 4100, 4101 Managing Health
Services Organization 1,2 | 6 |
| HMG 4301 Healthcare Delivery Systems | 3 |
| HMG 4200 Health Science Statistics | 3 |
| HMG 4215 Health Law | 3 |
| HSC 4310 Public Health 1 | 3 |
| MLS 4341 Epidemiology 1 | 3 |
| HSC 4301, 4302 Pathophysiology 1,2 | 6 |
| HSC 4320, 4321 Training and Development
in the Health Professions 1, 2 | 6 |

- 3. Upper-level. Require prerequisites from 1 and 2**
- Professional Specializations** QH
- Choose one of the following options:*
- Option 1. Comprehensive Health Science (32)**
- | | |
|----------------------------------------|----|
| Choose courses from HSC | 16 |
| Choose courses from HSC, HMG, HIA, MLS | 16 |
- (Acceptable transfer courses that may be used in this option: EMS, NUR, and RAD)
- Option 2. Environmental Health & Safety (33)**
- | | |
|-------------------------------------------------------------|---|
| HSC 4315 Environmental Problems and
Health | 3 |
| HSC 4350 Introduction to Environmental
Health and Safety | 3 |
| HSC 4352 Environmental Law | 3 |
| HSC 4354 Loss Prevention and Fire Safety | 3 |
| HSC 4401 Occupational Safety | 3 |
| HSC 4402 Health Hazards Workplace
Environment | 3 |
| HSC 4403 Environmental Compliance | 3 |
| HSC 4404 Hazardous Waste Management | 3 |
| HSC 4501 Industrial Toxicology | 3 |
| Electives (choose 2): HSC 4502, HSC 4503,
HSC 4504 | 6 |
- Option 3. AS Transfer to Health Science BS**
- Requires prior completion of a health or science AS degree: for example: Dental Hygiene, MLS, Nursing, Occupational Therapy, Paramedic Technology, Physical Therapy, Radiologic Technology, Lab Tech
- Option 4. Medical Specialty Preparation to Health Science BS**
- Students completing admission requirements for Medical/Dental/Nursing Schools, Pharmacy/SLA may transfer these credits toward a HSC degree.
- 4. Complete any time as long as prerequisites are met.** QH
- Liberal Arts courses (AFR, ART, ASL, CMN, ECN, ENG, HST, JRN, LN, MTH, MUS, PHL, POL, PSY, SOA, SOC, TCC, THE) 21
- Diversity Requirements: Take one of the following: SOA 4325, SOC 4154, SOC 4170, SOC 4177, SOC 4178 3
- General electives as needed to complete total credits

Total Quarter Hours: 174

Medical Laboratory Science

Associate in Science Degree (Major Code 800)



The practice of modern medicine would be impossible without the tests performed in the clinical laboratory. A healthcare team of pathologists, specialists, medical technologists, and medical technicians work together to determine the presence, extent, or absence of disease and provide data needed to evaluate the effectiveness of treatment. The medical laboratory technician works under the direct supervision of a medical technologist and performs the laboratory tests necessary to collect the data needed for diagnosis and treatment of the patient.

Medical laboratory procedures require an array of complex precision instruments and a variety of automated and electronic equipment; however, women and men dedicated to helping others are the real foundation of a successful laboratory. Medical laboratory technicians need precise measuring and data collecting capabilities. They must be accurate and reliable in their work. They must have an interest in science and a keen awareness of their responsibility for human lives. Critical to high-quality healthcare is the assurance that individuals performing laboratory tests are able to carry out their responsibilities in a proficient manner. Therefore, laboratory personnel of demonstrated competence are of prime importance. Characteristics of an individual considering a career as a medical laboratory technician include sound judgment, manual dexterity, accuracy, scientific curiosity, and attention to detail.

The Associate in Science degree program is conducted in affiliation with Boston-area hospitals and is accredited by the Committee of Allied Health Education and Accreditation of the American Medical Association. Upon successful completion of this associate degree program, the student is eligible to take a national certification examination given by the National Certification Agency for Medical Laboratory Personnel or the Board of Registry of the American Society of Clinical Pathologists. Assured competency in the required skills and a successful preparation for the certification examination, make it imperative that students meet and plan their coursework with the Medical Laboratory Science Program Director prior to beginning work in this major. The introductory and intermediate courses (1 & 2) are offered in the evening, but the Major Concentration courses are offered only during the day. All clinical applied studies must be arranged with the Program Director one year in advance of the anticipated entry into clinical courses. Prerequisites for clinical applied studies are a minimum of a 2.0 q.p.a. in the required courses and a C- or better in each MLS course. To meet this program's residency requirement, 12 q.h. of MLS coursework must be completed at Northeastern University.

1. Complete these courses first. They are prerequisites for later courses.

	QH
ENG 4100, ENG 4101 Critical Writing 1, 2	8
ENG 4102 Critical Writing Workshop	2
MTH 4107 College Algebra	4
MTH 4108 Pre-Calculus	4
BIO 4107/BIO 4110 Biology 1 (Principles)/Lab	3/1
BIO 4109/BIO 4112 Biology 3 (Animal)/Lab	3/1
CHM 4133/CHM 4140 Chemical Principles 1/Lab	3/1
CHM 4134/CHM 4141 Chemical Principles 2/Lab	3/1
CHM 4135/CHM 4142 Chemical Principles 3/Lab	3/1
MIS 4114 Introduction to PC Software	3

2. Intermediate-level courses. Require prerequisites from 1.

	QH
BIO 4161/BIO 4165 Human Anatomy & Physiology 1/Lab	3/1
BIO 4162/BIO 4166 Human Anatomy & Physiology 2/Lab	3/1
BIO 4163/BIO 4167 Human Anatomy & Physiology 3/Lab	3/1

3. Upper-level courses. Require prerequisites from 1 and 2.

Major Concentration Courses*

	QH
MLS 4301 Medical Laboratory Science Orientation	3
MLS 1104 Laboratory Techniques	3
MLS 1112/MLS 1212 Renal Physiology/Urinalysis/Lab for Renal Physiology/Urinalysis	2/1
MLS 1172 Immunology	2
MLS 1125/MLS 1225 Hematology/Lab for Hematology	4/1
MLS 1145/MLS 1245 Microbiology/Lab for Microbiology	4/1
MLS 1132/MLS 1232 Immunohematology/Lab for Immunohematology	3/1
MLS 1152/MLS 1252 Clinical Chemistry and Instrumentation/Lab for Clinical Chemistry	4/1
MLS 1412 MLT Special Topics	2
MLS 1423 MLT Hematology Applied Study	2
MLS 1432 MLT Immunohematology Applied Study	2
MLS 1442 Microbiology Applied Study	2
MLS 1452 MLT Clinical Chemistry Applied Study	2
MLS 1480 MLT Seminar	2

Total Quarter Hours: 95

*Challenge examinations are available for many of the major concentration courses. Those working in the field may want to investigate this option by speaking with the program director at 617.373.3664.

Nursing (Evening Section)

- RN-BSN Study Option, Evening Section
- LPN-BSN Study Option, Evening Section

NEW

The School of Nursing's Bachelor of Science degree in Nursing, accredited by the National League for Nursing, is offered to Registered Nurses and Licensed Practical Nurses as a part-time curriculum schedule through University College. This study option enables RNs and LPNs with preparation at the diploma or associate's degree level to attain a baccalaureate degree in Nursing. Consistent with the philosophy of the School of Nursing and its curriculum, these study options have a strong community focus, with emphasis on the prevention of illness and the promotion of health. Candidates for admission to these study options are assessed on an individual basis, culminating in a comprehensive review of their personal and professional growth through a portfolio developed in NUR 4403 *Professional Transitions in Nursing* in the RN-BSN program and NUR 4107 *LPN-BSN Professional Transitions, Nursing Process and Skills* in the LPN-BSN program. Part of the instructor's role in these courses is to assist students in the preparation of the portfolio. At the conclusion of this assessment, coupled with review of previous nursing education, qualifying students will be granted advanced placement credit of 96 quarter hours for licensed RNs and 50 quarter hours for licensed LPNs. Nursing experience is required to develop a professional portfolio. RNs or LPNs lacking experience will be admitted to the program but will complete other non-NUR degree requirements while gaining nursing experience through employment or volunteer work as an RN or LPN. Registration in NUR 4403 and NUR 4107 is open only to experienced RNs or LPNs. Other avenues of advanced placement are open to the nursing student consistent with regular University College transfer credit and residence policies. Academic progression policies of the School of Nursing Baccalaureate program (students must attain a grade of 2.0 or better in each NUR course) also apply to these study options. Students must also maintain an overall q.p.a. of 2.0 or better to remain in good academic standing.

Advising and Planning a Program of Study

Prospective students are encouraged to attend group information sessions in order to increase their awareness of School of Nursing and University College policies. These sessions cover course requirements, academic promotion policies, advanced placement procedures, and the process of petitioning for admission. To register for one of these sessions, call 617.373.5796.

Pre-admission and academic advising are available by calling the Office of Academic and Student Affairs at 617.373.2400 or TTY 617.373.2825 (for Deaf and hearing impaired only) for an appointment.

Prospective and current students may obtain a preliminary status report and transfer credit evaluation, detailing courses that are acceptable for transfer from other institutions as well as the remaining coursework to be completed, by contacting the Office of Academic and Student Affairs, 617.373.2400 or TTY 617.373.2825. An official status report and transfer credit evaluation will be issued after review of the portfolio and previous nursing education in NUR 4403 *Professional Transitions in Nursing* for RN-BSN students or NUR 4107 *LPN-BSN Professional Transitions, Nursing Process and Skills* for LPN-BSN students and successful completion of the course.

To graduate, students must successfully complete each required course and all electives to total 174 q.h., or with an overall q.p.a. of 2.0 or better. To be considered for graduation with honor, students must have completed at least 72 q.h. of credit at University College. Credit earned through transfer credit, examination, or portfolio review is not considered toward honors designations.

RN-BSN Bachelor of Science in Nursing (Major Code 809)



Please note: students must complete at least 45 q.h. in residence at University College.

Admission Requirements

Admission application packets are available from the Health Professions and Science Office, 266 Ryder Hall, or by calling 617.373.5796.

The following items are required for admission to this study option and should be forwarded to the Office of Academic and Student Affairs, University College, 180 Ryder Hall, Northeastern University, 360 Huntington Avenue, Boston, MA 02115:

- Completed RN-BSN Nursing Program Application
- Official transcripts from basic nursing program
- Official transcripts from all colleges/universities attended (If college courses were completed while attending a diploma nursing program, an individual transcript from that college must be included.)
- Evidence of current state licensure as a Registered Nurse
- Evidence of current CPR certification*
- Evidence of current Professional Nurse Liability insurance* (Students without liability insurance may contact the Health Professions and Science Office to arrange for coverage through Northeastern.)

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- Health clearance:* (Health clearance is obtained from the Lane Health Center. Evidence of a tuberculin skin test within the previous twelve months and a hepatitis vaccine statement must be provided.) Call Pamela Harris, RN at 617.373.5579 for information on health clearance requirements
- Current resumé documenting RN experience

*These clearances and proofs must be updated annually with the Health Professions and Sciences Office.

All admitted Nursing students will receive a reminder letter once a year asking for updated proof of CPR, insurance, and health clearance.

LPN-BSN Bachelor of Science in Nursing (Major Code 808)



The LPN-BSN program allows licensed practical nurses, prepared at the diploma or associate's degree level, to attain a baccalaureate degree in Nursing. It includes coursework and clinical experiences designed to prepare experienced LPNs to take the RN licensing boards for the State of Massachusetts. Consistent with the philosophy of the School of Nursing, this study option has a strong community focus, with emphasis on the prevention of illness and the promotion of health. This degree is designed for adult students and will prepare graduates to function in a diverse healthcare system as professional nurses. **Please note:** Students must complete at least 45 q.h. in residence at University College.

Admission Requirements

For admission to University College, a student must provide proof of high school completion, 18 q.h. of college-level work with a "C" grade or better, and the equivalent of our Critical Writing sequence.

The following items are required for admission to this study option and must be forwarded to the Office of Academic and Student Affairs, 180 Ryder Hall, University College of Northeastern University.

- Completed LPN-BSN Program application.
- Official transcript(s) from LPN Program.
- Official transcript(s) from all colleges/universities attended.
- Evidence of current state licensure as a Practical Nurse.
- Evidence of current CPR certification.*
- Evidence of current professional liability insurance.*
- Health clearance obtained from the Lane Health Center.* Evidence of a tuberculin skin test within the previous twelve months and a hepatitis vaccine inoculation must be provided.
- Current resumé documenting LPN experience.

*These clearances and proofs must be updated annually with the Health Professions and Sciences Office.

All admitted Nursing students will receive a reminder letter once a year asking for updated proof of CPR, insurance, and health clearance.

Students without liability insurance may contact the Health Professions and Sciences Program Office to arrange for coverage through Northeastern University.

Bachelor of Science in Nursing

RN-BSN (Major Code 809) and LPN-BSN (Major Code (808))



RN-BSN

1. *Complete these courses first. They are prerequisites for later courses.* QH

ENG 4102 Critical Writing Workshop	2
MIS 4114 Introduction to PC Software	3
History elective (HST)	3
Philosophy elective (PHL)	3
NUR 4403 Professional Transitions in Nursing* (RN experience required for this course. Students will prepare a portfolio, and qualified students will receive 96 q.h. advanced standing credit.)	4 96
2. *Intermediate-level courses. Require prerequisites from 1.* QH

ECN 4250, 4251 Statistics 1, 2	6
ECN 4130 Medical Economics	3
Humanities (ART, ASL, CMN, ENG, JRN, LN, MUS, PHL, TCC, THE)	9
NUR 4402 Health Assessment*	4
3. *Upper-level courses. Require prerequisites from 1 & 2.* QH

NUR 4502 Nursing Research*†	4
NUR 4503 Nursing and the Community*†	7
NUR 4508 Management and Leadership in Nursing*T	6
4. Open electives 24

Total Quarter Hours: 174

*Students must submit a petition to enter each nursing course. Petitions must be submitted to the Health Professions and Sciences Office at least one full quarter in advance of registering. Health clearance, CPR certification, and liability insurance must be up-to-date in order to register for NUR courses.

†These courses together fulfill the University diversity requirement.

LPN-BSN

1. *Complete these courses first. They are prerequisites for later courses.* QH

ENG 4102 Critical Writing Workshop	2
History Elective (HST)	3
MIS 4114 Introduction to PC Software	3
Psychology elective (PSY)	3
Philosophy elective (PHL)	3
Sociology elective (SOC)	3
CHM 4136 Chemistry for Life Sciences	3
BIO 4258, BIO 4259 Advanced Physiology 1, 2	6
BIO 4209/BIO 4212 Microbiology 3/Lab for Microbiology 3*	2/1
NUR 4107 LPN-BSN Professional Transitions, Nursing Process & Skills* (LPN experience is required for this course. Students will prepare a portfolio, and qualified students will receive 50 q.h. advanced standing credit.)	4 50
2. *Intermediate-level courses. Require prerequisites from 1.* QH

HSC 4210 Basic Nutrition	3
HSC 4225 Basic Pharmacology	3
ECN 4250, ECN 4251 Statistics 1, 2	6
ECN 4130 Medical Economics	3
HSC 4301 Pathophysiology 1	3
NUR 4402 Health Assessment*	4
NUR 4206 Healthy Childbearing and Childrearing/Clinical *	6
NUR 4307 Life Span Issues on Health & Disease *	3
3. *Upper-level courses. Require prerequisites from 1 & 2.* QH

HSC 4601 Advanced Pharmacology	3
HSC 4302 Pathophysiology 2	3
NUR 4208 Life Span Issues of Healthy Adulthood and Aging/Clinical*	6
NUR 4308 Health Restoration in Adults/Clinical*	6
NUR 4310 Health Restoration in Children/Clinical *	6
NUR 4408 Mental Health Restoration/Clinical*	6
NUR 4502 Introduction to Nursing Research*†	4
NUR 4503 Nursing and the Community*	7
NUR 4508 Management and Leadership in Nursing*†	6
NUR 4510 Senior Clinical Practicum*	4
4. Open Electives 9

*Major Concentration courses

Total Quarter Hours: 174

Paramedic Technology

Associate in Science Degree (Major Code 874)



University College provides the opportunity to earn a certificate as well as an associate's degree in Paramedic Technology. Major concentration areas involve the EMT-Paramedic's roles, responsibilities, and the subject areas required by Massachusetts Department of Public Health regulations and national guidelines. These areas include medical terminology, patient assessment and initial management, airway and ventilation, pathophysiology of shock, general pharmacology, trauma and burns, respiratory system, cardiovascular system, endocrine emergencies, nervous system, acute abdomen, genitourinary and reproductive systems, anaphylaxis, toxicology, alcoholism and drug abuse, infectious diseases, environmental injuries, geriatrics, pediatrics, obstetrics, gynecological and neonatal emergencies, behavioral emergencies, EMS systems, medical/legal considerations, communications, rescue, major incident response, and stress management.

Admissions requirements: completion and submission of an application form; high school diploma or equivalent; national, state, or provincial certification as an Emergency Medical Technician; official high school and college transcripts; entrance examination; Admissions Committee interview; and physical examination.

Students who successfully complete the Paramedic Technology Certificate courses may continue with the liberal arts and computer courses necessary for an Associate in Science in Paramedic Technology Degree.

Whether or not students continue on to the associate level, all those certified in Paramedic Technology may apply for and take the National Registry of Emergency Medical Technicians Paramedic Certification Examination.

Major Concentration/Certificate Courses	QH	Liberal Arts and Computer Courses	QH
EMS 4117, EMS 4118, EMS 4119,		ENG 4100, ENG 4101 Critical Writing 1, 2	8
EMS 4120 Emergency Medical Services		ENG 4102 Critical Writing Workshop	2
1, 2, 3, 4	24	MTH 4110, MTH 4111 Contemporary	
EMS 4121, EMS 4122 Emergency Medical		Algebra 1, 2	6
Services 5, 6	22	CMN 4101 Fundamentals of Human	
EMS 4123, Emergency Medical Service 7	3	Communication	3
BIO 4215/BIO 4217 Human Anatomy and		PSY 4110 Introduction to Psychology:	
Physiology A/Lab for Human Anatomy and		Fundamental Issues	3
Physiology A	3/1	PSY 4112 Introduction to Psychology:	
BIO 4216/BIO 4218 Human Anatomy and		Personal Dynamics	3
Physiology B/Lab for Human Anatomy and		HST 4103 The Civilization of the Modern	
Physiology B	3/1	World	3
		LNS 4200 Spanish for the Medical Professions	4
		MIS 4114 Introduction to PC Software	3
		Electives	3
		Total Quarter Hours:	95

LIBERAL ARTS DEGREE PROGRAMS

Through the liberal arts curricula offered by University College, students are guided in their independent and creative discovery of ideas and methods in the areas of humanities, natural sciences, and social sciences.

University College believes that a liberal arts education enables students to make more intelligent and realistic appraisals of self and career. The Liberal Arts Programs at the college present students with both a challenge to bring meaning and focus to the educational experience and an opportunity to acquire marketable knowledge and skills.

Rose A. Doherty,
Assistant Dean and Director,
Liberal Arts Programs

Nancy Bandoian,
Assistant to the Director,
Liberal Arts Programs

266 Ryder Hall
617.373.2416, 373.2423;
373.4126 (TTY)

Program Consultants and Advisors

ART: Fine Arts and Graphic Design

Consultant: Prof. Peter Serenyi,
Dept. of Art and Architecture
(617.373.2416)

Associate Consultant/Program Advisor:
Daniel Vardaro (617.373.2416)

Associate Consultant/Photography
Prof. T. Neal Rantoul
Dept. of Art and Architecture
(College of Arts and Sciences)

ASL: American Sign Language

Consultant/Program Advisor:
Prof. Dennis R. Cokely, Director,
ASL Program (College of Arts and
Sciences)
(617.373.3064/TTY 617.373.3067)

CMN: Communication Studies

Consultant/Program Advisor:
Prof. Alan J. Zarembo,
Communication Studies Dept.
(College of Arts and Sciences)
(617.373.5517)

ECN: Economics

Consultant: Prof. Steven A. Morrison,
Acting Chair,
Economics Dept. (College of Arts and
Sciences) (617.373.2872)
Associate Consultant/Program Advisor:
Dr. Herbert J. Eskot (617.964.4718)

ENG: English (Literature or Writing)

Consultant: Prof. M. X. Lesser,
English Dept. (617.373.2416)
Associate Consultant, Business Writing:
Rosemarie Dittmer (617.373.2416)
Associate Consultant, Critical Writing:
Joseph DeRoche (617.373.2423)
(College of Arts and Sciences)

HST: History

Consultant:
Prof. Raymond H. Robinson,
History Dept.
Associate Consultant/Program Advisor:
Prof. Gerald H. Herman, History Dept.
(College of Arts and Sciences)
(617.373.2660)

JRN: Journalism

Consultant/Program Advisor: Prof.
Charles Fountain
School of Journalism (617.373.3236)

LN: Modern Languages

Consultant: Prof. Holbrook Robinson,
Modern Languages Dept.
(College of Arts and Sciences)
(617.373.8881)

MUS: Music

Consultant: Prof. Joshua R. Jacobson,
Music Dept.
Associate Consultant/Program Advisor:
TBA, Music Dept.
(College of Arts and Sciences)
(617.373.2440)

PHL: Philosophy and Religion

Consultant: Prof. Susan Setta,
Philosophy Dept.
(College of Arts and Sciences)
(617.373.7699)

POL: Political Science

Consultant: Prof. L. Gerald Bursey,
Political Science Dept.
(College of Arts and Sciences)
(617.373.2796)

PRL: Paralegal Studies

Consultant/Program Manager:
Marjorie A. Duffy (617.373.4111)
(University College)

PSY: Psychology

Consultant/Program Advisor:
Dr. Daniel F. Quinn, Psychology Dept.
Associate Consultant:
Prof. Harold Zamansky,
Psychology Dept.
(College of Arts and Sciences)
(617.373.3076)

SOA: Sociology-Anthropology and

SOC: Sociology
Consultant: Prof. T. Anthony Jones,
Chair, Sociology-Anthropology Dept.
(College of Arts and Sciences)
(617.373.2686)

TCC: Technical Communications

Consultant/Program Advisor:
Neil F. Duane (President, Boston
Documentation Design)
(781.829.8558)

THE: Theatre

Consultant: Prof. Don E. Lewis,
Theatre Dept.
(College of Arts and Sciences)
(617.373.2244)

Associate in Science Degree Program

An Associate in Science degree program in arts and sciences is offered for those who want a general background in liberal arts but do not want to pursue a major field of concentration for the bachelor's degree. Students who do wish to go on to a bachelor's degree should check with an academic advisor to be sure that the courses they select for the AS degree will fit into their chosen bachelor's program.

The Associate in Science degree in Graphic Design and Visual Communication allows students to complete general education courses in communication, social sciences, and business in addition to courses related to the major. Students may build their academic career from the Computer Graphics certificate to the associate's degree to the bachelor's degree.

Bachelor's Degree Programs

University College offers Bachelor of Arts and Bachelor of Science degrees in art, economics, English, history, liberal studies, political science, psychology, and sociology-anthropology, and bachelor of arts degrees in American Sign Language-English Interpreting and international politics, culture, and trade. Unlike the Bachelor of Science degree, the Bachelor of Arts degree includes a language requirement. Bachelor of Science degrees are offered in graphic design and visual communication, in technical communications, and in the popular combined program Liberal Arts with Business Minor. In addition, degree programs in English and technical communications present professional concentrations designed to teach specialized skills.

Bachelor's degree candidates are permitted to earn up to 44 quarter hours of credit (25 percent of the credits toward a bachelor's degree) in business subjects. Students may be eligible for the minor in business administration; see page 48.

Bachelor's Degree in Liberal Studies

The new Bachelor of Science and reconfigured Bachelor of Arts in Liberal Studies degrees allow students to develop a program of study and pursue an area of interest that is not predefined as a major concentration at University College. Whether you are seeking an opportunity to broaden intellectual and cultural awareness or preparing for specific professional pursuits, the Bachelor of Arts and Bachelor of Science in Liberal Studies will provide both a solid foundation and a program tailored to your individual goals.

Highlights include the following:

- development of a course of study that responds to your educational and professional goals
- individually paced education that allows you to build your academic confidence and integrate your studies into your life
- academic competencies that fulfill the requirements of the Academic Common Experience
- opportunity to explore and develop academic interests with the aid of a Northeastern University faculty member

Double Majors

Liberal Arts students can now earn a degree with a double major. Students will complete all of the requirements toward two bachelor's degree programs and will receive one diploma indicating completion of the double major. Double majors are available in Economics/Political Science; Art/Graphic Design and Visual Communication; and English/Technical Communications. Make an appointment to see an academic advisor to discuss the program.

Special Studies

University College offers a variety of Special Studies. These courses give qualified students an opportunity to earn credits in Advanced Tutorials, Independent Studies, Honors Programs, and Field Work. Consult descriptions on pages 219.



Fast-track for the Management BSBA, the Management Information Systems BSBA, and Liberal Arts with a Business Minor



, the premier accelerated program for adults in the Boston region, will enable students to speed up the study of their Management BSBA, MIS BSBA, or Liberal Arts with Business Minor degree. If you have relevant transfer credit or take College Level Examination Program (CLEP) examinations in certain subjects, you can finish even faster.

The **ACCEL** program is very flexible. You can start the program at any point. This way, if you have completed an associate's degree program, have other transfer credit, or can take CLEP examinations for certain subjects, you will have a head start, or a lighter course load in an academic quarter.

The program is offered on the Boston and Burlington campuses on Friday nights and Saturday mornings with the exception of the Summer quarter, when the schedule reverts to the Monday through Thursday evening format. Many of the courses in the program are offered at a reduced tuition rate.

Please call 617.373.2400 or TTY 617.373.2825 to request a brochure explaining the **ACCEL** program.

Minor in Business Administration

The Minor in Business Administration is available to all non-Business students at University College if they meet the following standards: 80 earned quarter hours, 2.0 q.p.a., and completion of all background courses. Non-Business students may find the minor attractive if they are considering pursuing an MBA or a management career. The minor consists of 10 required courses, 4 background courses, and 2 electives. Students who wish to enter the program should speak with an advisor in the Office of Academic and Student Affairs upon successfully meeting the standards listed above. Students who complete all 12 required courses successfully and have earned at least a C (2.0) average in them will be awarded a minor in Business Administration at graduation.

Background courses

ECN 4115	ECN 4116	Economic Principles and Problems 1, 2
MTH 4110	MTH 4111	Contemporary Algebra 1, 2

Required courses

MGT 4101	MGT 4102	Introduction to Business and Management 1, 2
ACC 4101	ACC 4102	Accounting Principles 1, 2
HRM 4301	HRM 4302	Organizational Behavior 1, 2
FI 4301	FI 4302	Principles of Finance, Financial Management
MKT 4301		Introduction to Marketing 1
MKT 4320		Marketing Management

Electives

Selection of one of the following four sets of courses (depending on student interest):

1. MGT 4450 MGT 4451 Business Policy 1*, 2
- 2 A. MGT 4370 Entrepreneurship/Intrapreneurship
- B. MGT 4371 Building a Profit Stream
- 3 A. MGT 4446 International Business Management and Operations**
- B. MGT 4455 Manager and Society**
- 4 A. OM 4404 Service Operations Management**
- B. MGT 4410 Project Management Process: Planning and Implementation**

*Must have 130 q.h. to register.

**Must have 80 q.h. to register.

Assessment of Prior Learning Program (APL)

Some students may petition for prior learning or life experience credit, in specified liberal arts, health, and business subjects. See page 222 for details. Credit cannot be awarded through APL when an appropriate examination is available through CLEP, Regents College (formerly PEP), or DANTES.

Arts and Sciences Associate in Science Degree (Major Code 372)



Core Courses

ENG 4100	ENG 4101	Critical Writing 1, 2	quarter hours
ENG 4102		Critical Writing Workshop	8
			2

Major Concentration Courses

Humanities (ART, ASL, CMN, ENG, JRN, LN, MUS, PHL, TCC, THE)	24
Math-Science (BIO, CHM, ESC, MTH, PHY)	18
Social Sciences (AFR, ECN, HST, POL, PSY, SOA, SOC)	24

Electives*	11
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Total Quarter Hours	87
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*Recommended: INT 4200 *Workshop in Creativity* and CD 4100 *Managing Career Decisions*.

American Sign Language-English Interpreting Bachelor of Arts Degree (Major Code 353)



American Sign Language (ASL) is the primary language used by the Deaf Community in the United States and Canada. A language expressed gesturally and received visually, ASL is not patterned after, or derived from, English or any other spoken language. The Deaf Community uses ASL to express the wit, poetry, and folklore, as well as to preserve and share the values and rich cultural experiences of the Community. Conversational competence in ASL is one prerequisite for acceptance into the Deaf Community and is essential for anyone with the need or interest in interacting with the Deaf Community for professional purposes.

The degree program complements the American Sign Language courses with electives in the humanities, math, science, technology, and social science. Students can apply to the degree program when they are accepted into the American Sign Language-English Interpreting certificate. Students are advised to complete all certificate work before beginning degree courses.

Those interested in interacting with members of the Deaf Community for personal or professional reasons will want to consider the benefits offered them in the ASL Program and the Deaf Studies Program (see certificate requirements on p. 71).

Core Courses			quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2	8
ENG 4102		Critical Writing Workshop	2
Modern Language			
ASL 4101	ASL 4102	American Sign Language 1, 2	8
ASL 4201	ASL 4202	Intermediate American Sign Language 1, 2	8
ASL 4301	ASL 4302	Advanced Proficiency 1, 2	8
Humanities			18
including	ENG 4501 Linguistics		(3)
Math/Science/Technology			18
including	MTH 4110, MTH 4111 Contemporary Algebra 1, 2		(6)
	MIS 4114 Introduction to PC Software		(3)
Social Science			18
including	ASL 4412 American Deaf Culture*		(3)
	HST 4201, HST 4202, HST 4203 American History		(9)
Major Concentration Courses			
ASL 4410		Linguistics of ASL	3
ASL 4415		Deaf Community Practicum	3
ASL 4600		Introduction to Interpreting	3
ASL 4601	ASL 4602	The Interpreting Process 1, 2, 3	12
ASL 4607		Interpreting Lab	4
ASL 4608		Practicum 1	4
ASL 4609		Contrastive Analysis for Interpreters	4
ASL 4610		Interpreters at Work	3
ASL 4612		Interpreter Role and Ethics	4
ASL 4411		Deaf History	(3)
or		or	
ASL 4413		ASL Literature	(3)
ASL 4604		Special Topics in Interpreting	3
ASL 4613		Practicum 2	4
Open Electives			36
Total Quarter Hours			174

*ASL 4412 fulfills the University diversity requirement.

Art Degree (Major Code 326) Bachelor of Arts and Bachelor of Science



The Art major provides a solid background in art history and in studio courses. The real world of the professional artist is brought into studio courses, which are taught by practicing fine artists, graphic artists, and production professionals. Students in the Bachelor of Arts complete 24 q.h. in one modern language. The Bachelor of Science degree allows students to earn either a minor in business administration or a double major in Art/Graphic Design and Visual Communication.

Common Courses for the Bachelor of Arts and Bachelor of Science

	quarter hours
ENG 4100 ENG 4101 Critical Writing 1, 2	8
ENG 4102 Critical Writing Workshop	2
Math-Science (BIO, CHM, ESC, MTH, PHY)	18
Social Sciences (AFR, ECN, HST, POL, PSY, SOA, SOC)	24
Diversity Requirement: Take one of the following: CMN 4231, CMN 4235, HRM 4333, HRM 4348, MGT 4357, SOA 4325, SOC 4154, SOC 4170, SOC 4177, SOC 4178	3

Art Major Concentration Courses

a) Required History Courses

ART 4106 Introduction to Art	3
ART 4103 History of Art to 1400	3
ART 4104 History of Art Since 1400	3
ART 4110 Modern Art	3

b) Required 3 1/2 hour Studio Courses

ART 4121 Principles of Drawing	3
ART 4112 Visual Foundations: Two-Dimensional Design	3
ART 4113 Visual Foundations: Three-Dimensional Design	3
ART 4139 Visual Foundations: Color	3
ART 4181 Introduction to Computer Graphics	3

Bachelor of Arts Degree

Modern Language	
Elementary	12
Intermediate	12

Electives

Art	24
Open electives*	44

Total Quarter Hours 174

*Up to 44 q.h. allowed in Business subjects.

Recommended INT 4200 Workshop in Creativity and CD 4100 Managing Career Decisions or the Minor in Business Administration (see page 48).

Bachelor of Science Degree

Electives

Art	24
Open electives*	68

Total Quarter Hours 174

Art/Graphic Design and Visual Communication Bachelor of Science Degree (Major Code 325)



It is now possible to pursue a double major in Art/Graphic Design and Visual Communication. Make an appointment with an academic advisor to map out a course plan, obtain a status report, or change your major to this double major.

Economics Degree (Major Code 390)

Bachelor of Arts and Bachelor of Science with Certificate in Finance



Economics is the study of how individuals and societies choose to use scarce resources that nature and previous generations have provided. With an emphasis on analysis and theory, the economics program provides thorough career preparation for graduates going directly into the job market in business, government, and education. The program also provides background for those planning to attend graduate school in economics, business, and law. Two degrees are offered: the Bachelor of Arts, which requires 24 q.h. of a modern language, and the Bachelor of Science, which allows students to incorporate a certificate in finance into their economics curriculum.

Common Courses for the Bachelor of Arts and Bachelor of Science			quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2	8
ENG 4102		Critical Writing Workshop	2
MTH 4110	MTH 4111	Contemporary Algebra 1, 2	6
Diversity Requirement Take one of the following: ECN 4313, ECN 4315, ECN 4321, ECN 4330			3

Economics Major Concentration Courses

ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
ECN 4137			History of Economic Thought	3
ECN 4215	ECN 4217 (or ECN 4219)		Macroeconomic Theory 1, 2 (or Intensive)	6
ECN 4216	ECN 4218 (or ECN 4220)		Microeconomic Theory 1, 2 (or Intensive)	6
ECN 4250	ECN 4251	ECN 4252	Statistics 1, 2, 3	9

Bachelor of Arts Degree

Modern Language	
Elementary	12
Intermediate	12
Humanities (ART, ASL, CMN, ENG, JRN, LN, MUS, PHL, TCC, THE)	24
Math-Science (BIO, CHM, ESC, MTH, PHY)	12
Social Sciences (AFR, HST, POL, PSY, SOA, SOC)	18

Electives

Economics	21
Open electives	23

CD 4100 Managing Career Decisions and INT 4200 Workshop in Creativity recommended.

Total Quarter Hours 174

Bachelor of Science Degree with Certificate in Finance

ACC 4101	ACC 4102	Accounting Principles	
ACC 4103		1, 2, 3	9
FI 4301		Principles of Finance	3
FI 4302		Financial Management	3
FI 4310		Investment Principles	3
FI 4320		Credit Principles	3
FI 4325		Budgeting and Planning	3
Social Sciences (AFR, HST, POL, PSY, SOA, SOC)			12

Electives

Economics	21
Liberal Arts	42
Open electives*	23

Total Quarter Hours 174
*Up to 20 q.h. allowed in Business subjects.

Economics/Political Science Bachelor of Science Degree (Major Code 329)



It is now possible to pursue a double major in Economics/Political Science. Make an appointment with an academic advisor to map out a course plan, obtain a status report, or change your major to this double major.

English Degree (Major Code 330) Bachelor of Arts and Bachelor of Science



English majors have become lawyers, teachers, business executives, academic administrators, and more. The English major is excellent preparation for any career that requires critical thinking, writing, and the interpersonal skills that come from a study of literature. After completing the major concentration courses, students choose either the literature or the writing concentration.

Common Courses for Bachelor of Arts and Bachelor of Science			quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2	8
ENG 4102		Critical Writing Workshop	2
Math-Science (BIO, CHM, ESC, MTH, PHY)			18
Social Sciences (AFR, ECN, HST, POL, PSY, SOA, SOC)			24

Major Concentration Courses

ENG 4120		English Literature: Faith and Humanism	3
ENG 4121		English Literature: Reason and Romanticism	3
ENG 4122		English Literature: Victorians and Moderns	3
ENG 4123		Early American Literature: Faith, Reason, and Nature	3
ENG 4124		American Romantics and American Realists	3
ENG 4125		American Literature: The Modern Temper	3
ENG 4131		God, Gods, and Heroes: The Literature of the Ancient and Medieval Worlds†	3
ENG 4132		Man, Reason, and Imagination: Literature from the Renaissance to the Romantic Age†	3
ENG 4133		Order and Disorder: Literature of the Moderns†	3
ENG 4349	ENG 4350	Expository and Persuasive Writing 1, 2	6
ENG 4352		Expository Writing Workshop	3
ENG 4604		Major Figure in Literature*	3
ENG 4658		Introduction to Shakespeare	(3)
or			
ENG 4659		Shakespeare: The Major Tragedies and Comedies	(3)

Choose one of two concentrations for 27 quarter hours.

I. Literature (27)

Select nine courses from the ENG 4200 or ENG 4600 series in the course descriptions on pages 136-139.

II. Writing (27)

Select six courses from the ENG 4300 or ENG 4500 series or ENG 4242, ENG 4243; and three courses from either the JRN or TCC courses. ENG 4380 and ENG 4381 are strongly suggested.

English Electives: ENG 4114 and up 9

Bachelor of Arts

Modern Language

Elementary	12
Intermediate	12
Open electives**	20

Total Quarter Hours 174

Bachelor of Science

Open electives** 44

Total Quarter Hours 174

*Course may be taken more than once, focusing on a different figure each time.

**Recommended: INT 4200 *Workshop in Creativity* and CD 4100 *Managing Career Decisions* or the Minor in Business Administration (see page 48).

†ENG 4131, ENG 4132, and ENG 4133 together fulfill the University diversity requirement.

English/Technical Communications Bachelor of Science Degree (Major Code 332)



It is now possible to pursue a double major in English/Technical Communications. Make an appointment with an academic advisor to map out a course plan, obtain a status report, or change your major to this double major.

Graphic Design and Visual Communication



Associate in Science Degree (Major Code 362)

The Associate in Science degree builds on the courses in the Computer Graphics Certificate (see page 101). Basic communication skills courses stress writing, critical thinking, and communication principles, and introductory business courses prepare the graphics professional to enter the world of business.

Bachelor of Science (Major Code 360)

The Bachelor of Science degree builds on the associate's degree. Students continue their work in computer graphics building their portfolios, and all of their work is brought together in the capstone course *ART 4400 Portfolio Development Workshop*.

Associate in Science Degree

Core Courses

	quarter hours
ENG 4100 ENG 4101 Critical Writing 1, 2	8
ENG 4102 Critical Writing Workshop	2
CMN 4101 Fundamentals of Human Communication	3
PHL 4100 Philosophical Thinking	3
HST 4101 The Civilization of the Ancient and Medieval Worlds	3

One History course from the following: HST 4102, 4103, 4201, 4202, 4203, 4600 to 4646

SOC 4100 Roles, Culture, and the Individual

One Sociology course from SOC 4101 to 4276

ACC 4101 Accounting Principles 1

MGT 4101 Introduction to Business and Management 1

MKT 4301 Introduction to Marketing 1

Major Concentration Courses

ART 4106	Introduction to Art	3
ART 4121	Principles of Drawing*	3
ART 4110	Modern Art	3
ART 4112	Visual Foundations: Two-Dimensional Design*	3
ART 4113	Visual Foundations: Three-Dimensional Design*	3
ART 4139	Visual Foundations: Color*	3
ART 4140	Graphic Communication and Production	3
ART 4141 ART 4142	Graphic Design 1*, 2*	6
ART 4143	Advertising Design*	3
ART 4151	Typography*	3
ART 4175	History of Graphic Design	3
ART 4181	Introduction to Computer Graphics*	3

Open electives 11

Total Quarter Hours 87

Bachelor of Science Degree

All courses listed for the AS plus the following:

	quarter hours
CMN 4251 Business and Professional Speaking	3
ENG 4380 ENG 4381 Writing for the Professions 1, 2	6
MIS 4114 Introduction to PC Software	3
MIS 4115 Introduction to Computers and Information Systems	3
MTH 4110 MTH 4111 Contemporary Algebra 1, 2	6
Math-Science (BIO, CHM, ESC, MTH, PHY)	12
Social Sciences (AFR, ECN, HST, POL, PSY, SOA, SOC)	12

Major Concentration Courses

ART 4160	Basic Photography*	3
ART 4183	Electronic Publishing Systems*	3
ART 4185	Creative Imaging: Custom Computer Design*	3
ART 4187	Advanced Computer Illustration*	3
ART 4189	Advanced Electronic Publishing Design*	3
ART 4191	3 D CADD Applications*	3
ART 4193	Designing Web Graphics*	3
ART 4400	Portfolio Development Workshop*	3

Diversity Requirement

HST 4101 and SOC 4100 fulfill the requirement.

Open Electives 18

Up to 44 q.h. allowed in Business subjects.

Recommended: INT 4200 *Workshop in Creativity* and CD 4100 *Managing Career Decisions*, or the Minor in Business Administration (see page 48).

Total Quarter Hours 174

*3 1/2-hour studio.

Art/Graphic Design and Visual Communication Bachelor of Science Degree (Major Code 325)



It is now possible to pursue a double major in Art/Graphic Design and Visual Communication. Make an appointment with an academic advisor to map out a course plan, obtain a status report, or change your major to this double major.

History Degree (Major Code 323)

Bachelor of Arts and Bachelor of Science



The research and analytical skills developed by history majors are valuable in banking, communications, insurance, investment services, journalism, law, manufacturing, marketing, publishing, and other career fields. Federal, state, and local legislative bodies, the executive and judicial branches of the federal government, regulatory, cultural, and international agencies, and private nonprofit organizations employ history majors.

After completing the introductory courses and historical skill courses, students fulfill the regional distribution requirement and complete four courses in one of eight thematic areas. Thematic designations are found after the course descriptions. All students who anticipate using quantitative methods are advised to take the full Research Methods sequence—SOC 4320, SOC 4331, SOC 4333. The upper-level history courses may be taken by students who already hold a bachelor's degree if they wish to pursue graduate study in history. Call Professor Gerald Herman at 617.373.2660 for more information. The Bachelor of Arts requires 24 q.h. of a modern language, and the Bachelor of Science allows students to complete the minor in business administration.

Common Courses for the Bachelor of Science and Bachelor of Arts

Core Courses		quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2 8
ENG 4102		Critical Writing Workshop 2
MTH 4110	MTH 4111	Contemporary Algebra 1, 2 6

History Major Concentration Courses

Introductory Courses

HST 4101	The Civilization of the Ancient and Medieval Worlds*	3
HST 4102	The Civilization of the Early Modern World*	3
HST 4103	The Civilization of the Modern World*	3
HST 4201	American History 1763-1848	3
HST 4202	American History 1848-1917	3
HST 4203	American History Since 1917	3

Upper-Level Courses

Regional Distribution

European:	any course with a HST 44 prefix	3
American:	any course with a HST 45 prefix	3
Other:	any course with a HST 46 prefix*	3

Thematic Distribution

Choose four courses from one of the following groups:

Group A:	America's Ethnic Roots	(12)
Group B:	America's Social and Economic History	(12)
Group C:	Contemporary History	(12)
Group D:	Technological History	(12)
Group E:	Women and Family History	(12)
Group F:	Honors	(12)
Group G:	The Ancient and Medieval World	(12)
Group H:	The Early Modern and Modern World	(12)

*HST 4101, HST 4102, HST 4103, and an international history course (HST 46 prefix) fulfill the University diversity requirement.

**Recommended: CD 4100 *Managing Career Decisions* and INT 4200 *Workshop in Creativity*, or the Minor in Business Administration (see p. 48). Up to 44 q.h. allowed in business subjects.

Bachelor of Arts *only* Requirements (in addition to Common Courses)

Historical Skill Requirement

HST 4241	The Historian's Craft	3
HST 4265	Introduction to Public History	3

Modern Language Requirement

Elementary	12
Intermediate	12

Liberal Arts and Open Electives

Humanities (ART, ASL, CMN, ENG, JRN, LN, MUS, PHL, TCC, THE)	24
Math-Science (BIO, CHM, ESC, MTH, PHY)	12
Social Sciences (in three of the following areas: ECN, POL, PSY, SOA, SOC)	18
Open electives (preferably other than History**)	35

Bachelor of Science *only* Requirements (in addition to Common Courses)

Historical Skill Requirement

HST 4241	The Historian's Craft	3
HST 4265	Introduction to Public History	3
HST 4263	Oral History	3
HST 4821	Field Work in History (or related APL credit)	6

Quantitative Methods

SOC 4320	Statistics	3
SOC 4331	Research Methods	3
SOC 4333	Advanced Research Methods	3
MIS 4114	Introduction to PC Software	3
MIS 4115	Introduction to Computers and Information Systems	3

Liberal Arts and Open Electives

Humanities (ART, ASL, CMN, ENG, JRN, LN, MUS, PHL, TCC, THE)	24
Social Sciences (in three of the following areas: ECN, POL, PSY, SOA, SOC)	18
Open electives (preferably other than History**)	47

Total Quarter Hours	174
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International Politics, Culture, and Trade Bachelor of Arts (Major Code 324)



The Bachelor of Arts in International Politics, Culture, and Trade helps provide the strong liberal arts and business foundation needed for employment in today's world, where international and intercultural business is growing. Students will learn about international issues and develop sensitivity to other cultures through the coursework in politics and culture. Students will also develop their business acumen by completing courses related to international trade. The modern language requirement will give students the understanding of a culture that comes only with knowledge of the language. Employment opportunities are as varied as the growing international economy.

Core Courses			quarter hours				quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2	8	Politics Grouping (<i>Choose three courses</i>)			9
ENG 4102		Critical Writing Workshop	2	POL 4307	Politics of Health in International Development		
ENG 4380	ENG 4381	Writing for the Professions 1, 2	6	POL 4330	Comparative Politics		
MTH 4110	MTH 4111	Contemporary Algebra 1, 2	6	POL 4331	International Relations		
PSY 4110		Introduction to Psychology: Fundamental Issues	3	POL 4332	International Organization		
PSY 4111		Introduction to Psychology: Developmental Aspects	3	POL 4334	International Political Economy		
PSY 4112		Introduction to Psychology: Personal Dynamics	3	POL 4338 to POL 4367 International and Regional Politics			
ECN 4115	ECN 4116	Economic Principles and Problems 1, 2	6	Culture Grouping (<i>Choose three courses</i>)			9
Core Courses—Liberal Arts				HST 4400 or 4600 series	International History		
CMN 4235		Intercultural Communication*	3	LNJ 4225	Japanese Culture		
ECN 4250	ECN 4251	Statistics 1, 2	6	LNR 4225	Russian Culture and Society		
HST 4101		Civilization of the Ancient and Medieval Worlds	3	PHL 4185	Ethics and International Development		
HST 4102		Civilization of the Early Modern World	3	SOA 4434	Latin American Peoples and Cultures		
HST 4103		Civilization of the Modern World	3	SOA 4431	African Peoples and Cultures		
PHL 4100		Philosophical Thinking	3	SOC 4178	Cultural Diversity in the Workplace		
PHL 4180		Business Ethics	(3)	SOC 4290	Sociology of Globalization		
or	or			Trade Grouping (<i>Choose three courses</i>)			9
PHL 4200		Logic	(3)	BL 4316	International Business Law**		
or	or			ECN 4334	Comparative Economic Systems		
PHL 4110		Social and Political Philosophy	(3)	ECN 4335	International Trade		
POL 4103		Introduction to Politics	3	ECN 4336	International Monetary Economics		
POL 4105		Introduction to Comparative Politics	3	FI 4450	International Finance**†		
SOA 4325		Cultures of the World*	3	HRM 4347	Managing People in International Settings**		
SOC 4100		Roles, Culture, and the Individual	3	MGT 4446	International Business Management and Operations**†		
Modern Language		Elementary	12	MGT 4357	Cultural Issues in International Business**		
		Intermediate	12	MGT 4348	The Global Marketplace**		
Core Courses—Business Administration				MKT 4453	International Marketing**†		
ACC 4101	ACC 4102	Accounting Principles 1, 2**	6	TRN 4350	International Transportation and Distribution Management**		
FI 4301		Principles of Finance**	3	Non-Business Electives			20
FI 4302		Financial Management**	3	Total Quarter Hours			174
HRM 4301	HRM 4302	Organizational Behavior 1, 2**	6	**Note: Business courses may not exceed 44 q.h. total, including electives.			
MGT 4101	MGT 4102	Introduction to Business and Management 1, 2**	6	†Requires 80 q.h. of credit.			
MKT 4301		Introduction to Marketing 1**	3				
MKT 4320		Marketing Management**	3				

*CMN 4235 and SOA 4325 fulfill the University diversity requirement.

**Note: Business courses may not exceed 44 q.h. total, including electives.

Liberal Arts with Business Minor

Bachelor of Science Degree (Major Code 373)



Basic Courses

These courses should be completed first, so students will have appropriate prerequisites.

	quarter hours
ENG 4100 Critical Writing 1	4
ENG 4101 Critical Writing 2	4
ENG 4102 Critical Writing Workshop	2
ENG 4380 Writing for the Professions 1	3
ENG 4381 Writing for the Professions 2	3
MTH 4110 Contemporary Algebra 1	3
MTH 4111 Contemporary Algebra 2	3
PSY 4110 Introduction to Psychology: Fundamental Issues	3
PSY 4111 Introduction to Psychology: Developmental Aspects	3
PSY 4112 Introduction to Psychology: Personal Dynamics	3
ECN 4115 Economic Principles and Problems 1	3
ECN 4116 Economic Principles and Problems 2	3
ECN 4117 Economic Principles and Problems 3	3

Liberal Arts Component

ECN 4250 Statistics 1	3
ECN 4251 Statistics 2	3
PHL 4100 Philosophical Thinking	3
PHL 4180 Business Ethics	3
PHL 4200 Logic	3
POL 4103 Introduction to Politics	3
POL 4104 Introduction to American Government	3
POL 4105 Introduction to Comparative Politics*	3
SOC 4100 Roles, Culture, and the Individual*	3
SOC 4101 Inequality and Institutions*	3
SOC 4102 Institutions and Social Change*	3

Choose 6 courses from:

HST 4101 The Civilization of the Ancient and Medieval Worlds*	(3)
HST 4102 The Civilization of the Early Modern World*	(3)
HST 4103 The Civilization of the Modern World*	(3)
HST 4201 American History 1763-1848	(3)
HST 4202 American History 1848-1917	(3)
HST 4203 American History Since 1917	(3)

or

any HST course with a 46 prefix (international history)*	(3)
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Business Administration Component

	quarter hours
ACC 4101 Accounting Principles 1	3
ACC 4102 Accounting Principles 2	3
FI 4301 Principles of Finance	3
FI 4302 Financial Management	3
HRM 4301 Organizational Behavior 1	3
HRM 4302 Organizational Behavior 2	3
MGT 4101 Introduction to Business and Management 1	3
MGT 4102 Introduction to Business and Management 2	3
MKT 4301 Introduction to Marketing 1	3
MKT 4320 Marketing Management	3

*POL 4105, SOC 4100, SOC 4101, SOC 4102, HST 4101, HST 4102, HST 4103, and any HST course with a 46 prefix fulfill the University diversity requirement.

Business Electives: *Select one of the following four sets of courses.*

1. MGT 4450, MGT 4451 Business Policy 1**
and Business Policy 2 (6)
2. MGT 4370, MGT 4371 Entrepreneurship and
Intrapreneurship and Building a Profit Stream (6)
3. MGT 4446,† MGT 4455† International
Business Management and Operations and
Manager and Society (6)
4. OM 4404,† MGT 4410† Service Operations
Management and Project Management
Process: Planning and Implementation (6)

Electives

Literature/Writing: Select two courses from the
ENG 4200, 4300, or 4600 series (course descriptions,
pages 136-139) 6
Non-Business electives†† 41

Total Quarter Hours 174

**Requires 130 q.h. of credit to register.

†Requires 80 q.h. of credit.

††Recommended: Art, Music, Theatre, and other Humanities. Also
suggested are INT 4200 *Workshop in Creativity*, CD 4100 *Managing Career
Decisions*, and INT 4400 *Paralegal Studies*.

ACEL Liberal Arts with Business Minor Program
 Schedule for 1999-2000 at the Boston and Burlington Campuses.

Year → Term	Fall 1999	Winter 2000	Spring 2000	Summer 2000
first year	Friday, 5:50-10:15 MGT 4105 6 q.h. Saturday, 9:00-12:45 ENG 4100 4 q.h.	Friday, 5:50-10:15 ACC 4105 6 q.h. Saturday, 9:00-12:45 ENG 4101 4 q.h.	Friday, 5:50-10:15 PSY 4114 6 q.h. Saturday, 9:00-11:10 ENG 4102 2 q.h. Saturday, 11:20-1:30 POL 4104 3 q.h.	1st five-week term HRM 4304 6 q.h. 2nd five-week term PSY 4112 3 q.h. POL 4105 3 q.h.
second year	Friday, 5:50-10:15 or 5:50-8:00 Science elective 3 q.h. or 6 q.h. Saturday, 9:00-11:10 PHL 4100 3 q.h. Saturday, 11:20-1:30 POL 4103 3 q.h.	Friday, 6:00-9:00 and Saturday, 9:00-12:30 ECN 4118 9 q.h.	Friday, 5:50-10:15 MTH 4114 6 q.h. Saturday, 9:00-11:10 FI 4301 3 q.h. Saturday, 11:10-1:30 MKT 4301 3 q.h.	1st five-week term CMN 4101 3 q.h. Non-Business Elective 3 q.h. 2nd five-week term FI 4302 3 q.h. MKT 4320 3 q.h.
third year	Friday, 5:50-10:15 ECN 4254 6 q.h. Saturday, 8:30-1:00 first half Burlington MGT 4455 3 q.h. Op. #3B Saturday, 9:00-11:10 HST 4102 3 q.h.	Friday, 5:50-10:15 SOC 4104 6 q.h. Saturday, 9:00-11:10 HST 4103 3 q.h. Saturday, 11:20-1:30 Non-Business Elective 3 q.h. Saturday 8:30-1:00 first half, Boston MGT 4455 3 q.h. Op. #3B	Friday, 5:50-10:15 ENG 4383 6 q.h. suggested elective Saturday, 9:00-11:10 Non-Business Elective 3 q.h. Saturday, 9:00-1:30 first half MGT 4370 3 q.h. Op. #2A Saturday, 9:00-1:30 second half MGT 4371 3 q.h. Op. #2B Saturday, 9:00-1:00 first half Boston OM 4404 3 q.h. Op. #4A Saturday, 8:30-1:00 second half, Burlington OM 4404 3 q.h. Op. #4A	1st five-week term, Boston MGT 4452 6 q.h. Op. #1 2nd five-week term Burlington MGT 4452 6 q.h. Op. #1 Full Summer ENG 4384 3 q.h. suggested elective HST 4101 3 q.h.
fourth year	Friday, 5:50-10:15 ENG 4353 6 q.h. suggested elective Saturday, 9:00-11:10 Non-Business elective 3 q.h. Saturday, 11:20-1:30 HST 4201 3 q.h. Boston, Monday, 5:50-7:40 Burlington, Tuesday 5:50-8:00 MGT 4410 3 q.h. Op. #4B	Friday, 5:50-8:00 Science elective 3 q.h. Saturday, 9:00-11:10 PHL 4180 3 q.h. Saturday, 11:20-1:30 HST 4202 3 q.h. Boston, Wed. 5:50-8:00 MGT 4446 3 q.h. Op. #3A Boston, Wednesday 5:50-8:00 Burlington, Monday 8:10-10:20 MGT 4446 3 q.h. Op. #3A	Friday, 5:50-8:00 Non-Business elective 3 q.h. Saturday, 9:00-11:10 PHL 4200 3 q.h. Saturday, 11:20-1:30 HST 4203 3 q.h.	1st five-week term Non-Business elective 3 q.h. (if needed) Non-Business elective 3 q.h. (if needed) 2nd Five Week Term Non-Business elective 3 q.h. (if needed)



Liberal Studies

Bachelor of Arts (Major Code 374) and Bachelor of Science (Major Code 375)



The Bachelor of Science and Bachelor of Arts in Liberal Studies degrees offer adult students the opportunity to explore and develop academic interests with the aid of a Northeastern University faculty member. Unlike traditional bachelor's programs in which students major in a specific academic area, this program is designed to allow students to pursue an area of interest that is not predefined as a major concentration at University College. The Bachelor of Arts in Liberal Studies requires 24 q.h. of modern language study. Students must have the equivalent of the AS in Arts and Sciences to begin this program.

Associate of Science in Arts and Sciences	87 q.h.
ENG 4100 ENG 4101 Critical Writing 1, 2	8
ENG 4102 Critical Writing Workshop	2
Humanities (ART, ASL, CMN, ENG, JRN, LN, MUS, PHL TCC, THE)	24
Students who intend to transfer into the Bachelor of Arts in Liberal Studies should take 24 q.h. in one modern language.	
Math-Science (BIO, CHM, ESC, MTH, PHY)	18
Social Sciences (AFR, ECN, HST, POL, PSY, SOA, SOC**)	24
Electives	11

Students contemplating the Bachelor of Arts or Bachelor of Science in Liberal Studies degree should take INT 4305 *Introduction to Liberal Studies* as their first course. The course is offered in the fall, winter, and spring. In *Introduction to Liberal Studies*, students will review the academic work they have already completed and compile a portfolio of these experiences. The self-assessment and goal-setting exercises in the program will enable students to develop a curriculum and degree completion plan. This plan will contain the rationale for future course selections and outlines a proposed plan of study leading to the bachelor's degree. The student proposal must be approved by the Liberal Arts Programs Curriculum Committee before students are admitted to the program.

Degree Completion	45 q.h.
INT 4305 Introduction to Liberal Studies	3
Area of concentration comprising upper-level courses in Humanities, Social Studies, and Science	39
INT 4310 Senior Project	3

All degree completion courses must be completed in residence.

Open Electives*	42 q.h.
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*Business Minor Optional

**Diversity requirement. Take one of the following: CMN 4231, CMN 4235, SOA 4325, SOC 4154, SOC 4170, SOC 4177, SOC 4178 (3)

Consult an academic advisor at 617.373.2400 or TTY 617.373.2825.

Students are advised to propose the subject of their senior project as soon as possible after admission. The proposal must be submitted by 120 q.h.

Sample Degree Completion Program

The program developed by the student interested in the relationship of gender and fine art could include courses in art history, psychology of sensation and perception, and economics, among others. In the Senior Project course, the student would present and illustrate his findings.

Political Science Degree (Major Code 322) Bachelor of Arts and Bachelor of Science



Political Science majors have career possibilities in public and private areas such as business, international organizations, law, and federal, state, and local government. Political Science majors offer potential employers a trained understanding of the intricate institutions and processes of governments. Government affairs divisions of private corporations and associations need people with sound political science education. All government agencies need people with the analytical skills to diagnose and solve a problem; University College graduates will meet these needs through writing, math, and statistics courses. Approximately one quarter of University College political science majors intend to go to law school; the major is excellent preparation.

After completing the major concentration courses, Political Science majors choose electives in American Government, Comparative Government, and International Relations. Students choose one course in theory and methodology; students who anticipate using quantitative methods are advised to take the full Research Methods sequence: SOC 4320, SOC 4331, and SOC 4333. The Bachelor of Arts requires 24 q.h. of a modern language, and the Bachelor of Science allows students to complete the minor in business administration. Students who meet the requirements may take INT 4400 *Paralegal Studies*. University College also offers the Bachelor of Arts in International Politics, Culture, and Trade.

Common Courses for the Bachelor of Arts and Bachelor of Science

		quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2
ENG 4102		Critical Writing Workshop
		8
		2

Major Concentration Courses

POL 4103	Introduction to Politics	3
POL 4104	Introduction to American Government	3
POL 4105	Introduction to Comparative Politics*	3
POL 4331	International Relations*	3
POL 4370	Introduction to Political Theory	3

American Government Choose three of the courses listed in this category on page 60. 9

Comparative Government* Choose two of the courses listed in this category on page 60. 6

International Relations* Choose one of the courses listed in this category on page 60. 3

Theory and Methodology Choose one of the courses listed in this category on page 60. 3

Bachelor of Arts

Modern Language

Elementary	12
Intermediate	12

Liberal Arts

Humanities (ART, ASL, CMN, ENG, JRN, LN, MUS, PHL, TCC, THE)	24
Math-Science (BIO, CHM, ESC, MTH, PHY)	18
Social Sciences (in three of the following areas: AFR, ECN, HST, PSY, SOA, SOC)	18
Electives	
Political Science	18
Open electives**	26
Total Quarter Hours	174

Bachelor of Science

Quantitative Skills and Technology

ECN 4250	ECN 4251	Statistics 1, 2	6
MIS 4114		Introduction to PC Software	3
MIS 4115		Introduction to Computers and Information Systems	3

Liberal Arts

Humanities (ART, ASL, CMN, ENG, JRN, LN, MUS, PHL, TCC, THE)	12
Math-Science (BIO, CHM, ESC, MTH, PHY)	6-8
Social Sciences (in three of the following areas: AFR, ECN, HST, PSY, SOA, SOC)	18
Electives	
Political Science	18
Open electives**	62
Total Quarter Hours	174

*Fulfills the University diversity requirement.

**Recommended: CD 4100 *Managing Career Decisions*, INT 4200 *Workshop in Creativity*, and INT 4400 *Paralegal Studies*. Up to 44 q.h. allowed in Business subjects.

Political Science Major Concentration Categories

American Government *(Choose three of the following.)*

POL 4310	American Political Thought	(3)
POL 4313	State and Local Government	(3)
POL 4314	Urban and Metropolitan Government	(3)
POL 4318	The American Presidency	(3)
POL 4319	The Legislative Process	(3)
POL 4320	American Constitutional Law	(3)
POL 4321	Civil Liberties	(3)
POL 4322	Criminal and Civil Due Process	(3)

Comparative Government* *(Choose two of the following.)*

POL 4330	Comparative Politics	(3)
POL 4338	European Political Parties	(3)
POL 4339	Government and Politics of Russia	(3)
POL 4342	Eastern Europe in Transition	(3)
POL 4359	Government and Politics in the Middle East	(3)
POL 4365	Government and Politics of China	(3)
POL 4367	Government and Politics of Japan	(3)

International Relations* *(Choose one of the following.)*

POL 4332	International Organization	(3)
POL 4334	International Political Economy	(3)
POL 4336	American Foreign Policy	(3)
POL 4341	Russian Foreign Policy	(3)
POL 4364	China's Foreign Policy	(3)

Theory and Methodology *(Choose one of the following.)*

SOC 4331	Research Methods	(3)
POL 4371	Modern Political Theory	(3)

*Fulfills the University diversity requirement.

Economics/Political Science Bachelor of Science Degree (Major Code 329)



It is now possible to pursue a double major in Economics/Political Science. Make an appointment with an academic advisor to map out a course plan, obtain a status report, or change your major to this double major.

Psychology Degree (Major Code 319)

Bachelor of Arts and Bachelor of Science



Students in psychology study the ways in which behavior is influenced by both internal (biological) and external (environmental) factors. As scientists, psychologists employ scientific methods, using careful observation, experimentation, and analysis. As educated people, psychology majors communicate well, solve problems, and think critically. Graduates learn the skills and gain the specific knowledge to be successful in careers and to be learners for the rest of their lives.

Psychology, the scientific study of behavior and mental processes, is an interdisciplinary science that includes methods and knowledge derived from the other natural and social sciences. The psychology curriculum explores such topics as the neurobiological basis of behavior, sensory functioning, learning and memory, human development, emotion and motivation, how individuals function in groups, and what constitutes an abnormal personality. Through laboratory practice and experimentation, individual research projects, and small group seminars, the program encourages a critical evaluation of psychology's various theoretical perspectives, its past and present accomplishments, and future directions.

The study of psychology is good preparation for many professions because employers are interested in the skills that psychology majors bring to the job. Their experience with collecting, analyzing, and interpreting data and their experience with statistics and experimental design will enable graduates to work in administration, public affairs, education, business, sales, service industries, health, the biological sciences, and computer programming.

The required major concentration courses for either degree prepare students for careers in teaching, business, public service, or research and provide a foundation for graduate study in all areas of psychology and related fields, as well as in such areas as law and medicine. Students who do not wish to extend their education beyond the bachelor's degree will find that their undergraduate training will help them find employment in public affairs, social services, education, business, and sales.

In keeping with the department's commitment to the scientific method, students are advised to take the statistical course sequence (PSY 4220, PSY 4221, and PSY 4222) as soon as their prerequisites have been satisfied (PSY 4110, PSY 4111, and PSY 4112, and MTH 4110 and MTH 4111). The major concentration courses (PSY 4231 *Psychology of Learning*, PSY 4272 *Personality*, PSY 4351 *Physiological Psychology*, and PSY 4381 *Sensation and Perception*) should follow shortly thereafter. In addition, students select courses from among such related areas as abnormal psychology, motivation, memory and thinking, developmental psychology, drugs and behavior, and psychology of women. The experimental psychology sequence (PSY 4561, PSY 4562, and PSY 4563) should be taken in the year prior to the expected graduation year. Finally, in a senior seminar, students have the opportunity to integrate the knowledge and experience gained from this entire program of study.

more. . .

Common Courses for the Bachelor of Arts and Bachelor of Science

			quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2	8
ENG 4102		Critical Writing Workshop	2
MTH 4110	MTH 4111	Contemporary Algebra 1, 2	6
Diversity Requirement			3
Take one of the following: CMN 4231, CMN 4235, HRM 4333, HRM 4348, MGT 4357, SOA 4325, SOC 4154, SOC 4170, SOC 4177, SOC 4178			
Psychology Major Concentration Courses			
PSY 4110		Introduction to Psychology: Fundamental Issues	3
PSY 4111		Introduction to Psychology: Developmental Aspects	3
PSY 4112		Introduction to Psychology: Personal Dynamics	3
PSY 4220	PSY 4221	Statistics in Psychology 1, 2, 3	9
PSY 4231		Psychology of Learning	3
PSY 4272		Personality	3
PSY 4351		Physiological Psychology	3
PSY 4381		Sensation and Perception	3
PSY 4561	PSY 4562	Experimental Psychology 1, 2, 3	9
PSY 4563		Senior Seminar in Psychology	3
PSY 4611			

Bachelor of Arts Degree

The bachelor of arts degree is intended for students who wish to pursue a broad liberal arts education that explores the humanities, the social sciences, and to a lesser extent, the natural sciences. Two years of language study are included.

Modern Language	
Elementary	12
Intermediate	12
Humanities	24
(ART, ASL, CMN, ENG, JRN, LN, MUS, PHL, TCC, THE)	
Math-Science	12
(in three of the following areas: BIO, CHM, ESC, MTH, PHY)	
Social Sciences	18
(in three of the following areas: AFR, ECN, HST, POL, SOA, SOC)	
Electives	
Psychology	18
Open electives*	17
Total Quarter Hours	174

Bachelor of Science Degree

The bachelor of science degree is usually recommended for students who have a strong scientific interest in psychology and the natural sciences.

Math-Science	24
(BIO, CHM, ESC, MTH, PHY)	
Electives	
Psychology	18
Open electives*	71
Total Quarter Hours	174

*Recommended: CD 4100 *Managing Career Decisions* and INT 4200 *Workshop in Creativity*.

*Up to 44 q.h. allowed in Business subjects.

Sociology-Anthropology Degree (Major Code 321)

Bachelor of Arts and Bachelor of Science



Because sociology focuses on the issues, problems, trials, and triumphs of people trying to get along with one another, sociology is relevant where human relations are at work. Career possibilities include work in federal agencies, child welfare, seminar and workshop consultation, business, and education. The degree is also excellent preparation for those who wish to enter law school or pursue graduate degrees in social work or sociology. Sociologists understand change, and this understanding can be combined with good writing, research, and computer skills for success in business and human services.

After completing the introductory sociology and anthropology courses, students can begin their elective course work. A year of social theory courses, SOC 4300, SOC 4301, SOC 4302, should be followed in the next year by the research sequence, SOC 4320, 4331, 4333. Ideally these courses are the capstone to the degree. The bachelor of arts requires 24 q.h. of a modern language, and the Bachelor of Science allows students to complete the minor in business administration. Students who meet the requirements may take INT 4400 *Paralegal Studies*.

Common Courses for the Bachelor of Arts and Bachelor of Science

			quarter hours
ENG 4100	ENG 4101	Critical Writing ^{1, 2}	8
ENG 4102		Critical Writing Workshop	2
MTH 4110	MTH 4111	Contemporary Algebra 1, 2	6

Sociology-Anthropology Major Concentration Courses

SOA 4100		Physical Anthropology*	3
SOA 4101		Cultural Anthropology: Kinship Societies*	3
SOA 4102		Cultural Anthropology: State Societies*	3
SOC 4100		Roles, Culture, and the Individual*	3
SOC 4101		Inequality and Institutions*	3
SOC 4102		Institutions and Social Change*	3
SOC 4300	SOC 4301	Social Theory 1, 2, 3	9
SOC 4302		Statistics	3
SOC 4331		Research Methods	3
SOC 4333		Advanced Research Methods	3

Bachelor of Arts

Modern Language	
Elementary	12
Intermediate	12
Humanities	24
(ART, ASL, CMN, ENG, JRN, LN, MUS, PHL, TCC, THE)	
Math-Science	12
(BIO, CHM, ESC, MTH, PHY)	
Social Sciences	18
(in three of the following areas: AFR, ECN, HST, POL, PSY)	
Electives	
Sociology-Anthropology	12
Anthropology (SOA)	9
Open electives**	23
Total Quarter Hours	174

Bachelor of Science

Social Sciences	18
(in three of the following areas: AFR, ECN, HST, POL, PSY)	
Electives	
Sociology-Anthropology	30
Anthropology (SOA)	9
Open electives	65
Total Quarter Hours	174

*Fulfills the University diversity requirement.

**Recommended: CD 4100 *Managing Career Decisions* and INT 4200 *Workshop in Creativity*

Technical Communications Degree (Major Code 380) Bachelor of Science



The Technical Communications bachelor of science degree helps prepare students for careers as technical writers. Technical writers are needed in a variety of areas to write, update, and revise technical documents for the end user. In the program, students are taught the writing, production, technical, planning, scheduling, and interpersonal skills that professionals in the field, whether freelance or employed by a single company, will need. The core courses are complemented by required technical communications classes, and students are able to specialize in one of four tracks: high technology, computer science, environmental science, and health science. The capstone course, TCC 4340 *Documentation Development and Completion*, should be taken last (see course description, page 179).

The large number of electives allows students to develop the broad background required in this professional field. Make an appointment with an academic advisor for help with choosing electives; a list of suggested electives is available. Degree candidates may wish to investigate the business administration minor and certificates in writing and information systems. The Technical Communications Certificate (page 86) may serve the needs of those who already have a bachelor's degree.

Basic Communication Skills Courses

			quarter hours
ENG 4100	ENG 4101	Critical Writing 1, 2	8
ENG 4102		Critical Writing Workshop	2
ENG 4349	ENG 4350	Expository and Persuasive Writing 1, 2	6
ENG 4380	ENG 4381	Writing for the Professions 1, 2	6
ART 4140		Graphic Communication and Production	3
JRN 4112		Writing for Media 1	3
PHL 4100		Philosophical Thinking	3
PHL 4200		Logic	3
CMN 4152		Conducting Interviews in the Professions	3
MIS 4114		Introduction to PC Software	3
MTH 4110		Contemporary Algebra 1	3

Technical Communications Major Concentration Courses

TCC 4101	TCC 4102	Technical Writing 1, 2	6
TCC 4105		Editing for Science and Technology	3
TCC 4335		Introduction to On-Line Documentation	3
TCC 4340		Documentation Development and Completion	3

Choose four of the following:

TCC 4110		Technical-Promotional Writing	(3)
TCC 4301	TCC 4302	Computer Software Technical Writing 1, 2	(6)
TCC 4311	TCC 4312	Documentation Design 1, 2	(6)
TCC 4320		Proposal Writing	(3)
TCC 4330		The Business and Technical Presentation	(3)

Choose one of four tracks:

1. High Technology Technical Writing	(14)	3. Technical Writing for Environmental Science	(12)
2. Technical Writing for Computer Science	(12)	4. Technical Writing for Health Science	(12)

Diversity Requirement

Take one of the following: CMN 4231, CMN 4235, HRM 4333, HRM 4348, MGT 4357, SOA 4325, SOC 4154, SOC 4170, SOC 4177, SOC 4178

Electives 87-89

Total Quarter Hours 174

more. . .

Tracks in Technical Writing:

- | | | | |
|-------------------------------------------------------|---|---|--|
| 1. High Technology Technical Writing | | | |
| Two different computer languages | 6 | | |
| PHY 4101 PHY 4102 Physics 1, 2 | 8 | | |
| 2. Technical Writing for Computer Science | | | |
| MIS 4238 Introduction to the Internet | 3 | | |
| MIS 4243 Visual Basic Programming | 3 | | |
| MIS 4276 C Programming 1 | 3 | | |
| MIS 4283 Windows Programming | 3 | | |
| 3. Technical Writing for Environmental Science | | | |
| ESC 4103 Introduction to Earth Sciences: | | | |
| Solid Earth | | 3 | |
| ESC 4104 Introduction to Earth Sciences: | | | |
| Oceans and Atmosphere | | 3 | |
| ESC 4681 Science, Technology, and | | | |
| Modern Societies | | 3 | |
| HSC 4315 Environmental Problems | | | |
| and Health | | 3 | |
| 4. Technical Writing for Health Science | | | |
| BIO 4107 Biology 1 | | 3 | |
| CHM 4133 Chemistry 1 | | 3 | |
| HIA 4300 Medical Terminology | | 3 | |
| HSC 4310 Public Health 1 | | 3 | |
-

English/Technical Communications Bachelor of Science Degree (Major Code 332)



It is now possible to pursue a double major in English/Technical Communications. Make an appointment with an academic advisor to map out a course plan, obtain a status report, or change your major to this double major.

SCHOOL OF GENERAL STUDIES (SGS)

The School of General Studies (SGS) is designed for students who need help in strengthening their basic skills while they take the required freshman-year coursework in English, mathematics, and social and laboratory sciences.

Through the combination of a prescribed curriculum, small classes, and low student-teacher ratio, students follow a program that fits their academic and career goals. SGS faculty provide advice and participate in a "House Plan" in which faculty members share information on each student's progress.

The school not only helps SGS students excel at college-level work, but also allows them to consider several different areas of study before selecting a major. Although the School of General Studies does not confer degrees, students *are* eligible to be accepted as sophomores into a wide variety of university degree-granting programs after the successful completion of their first year. Furthermore, SGS courses count toward graduation in a degree-granting program.

In preparation for gaining sophomore status, SGS students follow one of four curriculum tracks: arts and sciences *or* undecided, business, criminal justice, and health/science. Students may change their curriculum track through the winter quarter of the freshman year without falling behind.

Students have access to all physical education facilities and co-curricular programs, as well as to the SGS Peer Tutoring Program, the Academic Assistance Center, and the math and writing centers. As for all Northeastern students, the Counseling Center is available for personal and academic counseling as well as for vocational testing and counseling.

To qualify for sophomore status in the College of Arts and Sciences, the College of Business Administration, and the College of Criminal Justice, SGS students must earn a quality-point average of 2.0 or higher and successfully complete a minimum of forty-four programmed credits, as well as required courses. The College of Business Administration requires that students earn at least a 1.8 in the four core courses: ECN 4601, ENG 4014, MGT 4110, and MTH 4040.

For entrance to the School of Nursing, College of Computer Science, and School of Engineering Technology, students complete a few additional science requirements during the freshman year. The Bouvé College of Health Sciences offers the following programs to students who have successfully completed the appropriate SGS curriculum: cardiopulmonary sciences, medical laboratory science, speech-language pathology and audiology, and toxicology. Students may also continue their degree programs in University College.

Arlene T. Greenstein, Ph.D.,
Associate Dean, University College

George R. Atkinson, *Director,*
School of General Studies

Sally L. Solomon,
Administrative Assistant,
School of General Studies

250 Ryder Hall
617.373.4626

Tuition and Fees

Tuition and fees for the School of General Studies are the same as for students in the full-time Day Colleges.

For More Information

For more information on the School of General Studies, write or call the Dean of Admissions, Department of Admissions, Northeastern University, 360 Huntington Avenue, Boston, MA 02115, 617.373.2200.

Sample One-Year Program, Arts and Sciences or Undecided Track

		quarter hours
Quarter 1		
ED 4003	Integrated Language Skills A	4
ENG 4013	Introductory Writing 1	4
MTH 4010	Mathematical Preliminaries 2*	4
SOC 4010	Principles of Sociology 1	(4)
<i>or</i>	<i>or</i>	
HST 4110	History of Civilization A	(4)
Total Quarter Hours		16
Quarter 2		
ED 4004	Integrated Language Skills B	4
ENG 4014	Introductory Writing 2	4
MTH 4020	Functions and Algebra*	4
SOC 4010	Principles of Sociology 1	(4)
<i>or</i>	<i>or</i>	
HST 4110	History of Civilization A	(4)
Total Quarter Hours		16
Quarter 3		
ED 4005	Integrated Language Skills Seminar	1
ENG 1111	College Writing 2	4
MTH 4030	Applications of Algebra*	4
SOC 4010	Principles of Sociology 1	
	(or Directed Elective)	(4)
HST 4111	History of Civilization B	(4)
Total Quarter Hours		17

*Students will be placed in math levels depending on placement test results.

Sample One-Year Program, Business Track

		quarter hours
Quarter 1		
ED 4003	Integrated Language Skills A	4
ENG 4013	Introductory Writing 1	4
MTH 4010	Mathematical Preliminaries 2*	4
ECN 4601	Economics 1	(4)
<i>or</i>	<i>or</i>	
HST 4110	History of Civilization A	(4)
Total Quarter Hours		16
Quarter 2		
ED 4004	Integrated Language Skills B	4
ENG 4014	Introductory Writing 2	4
MTH 4020	Functions and Algebra*	4
MGT 1115	Introduction to Business	(4)
<i>or</i>	<i>or</i>	
HST 4110	History of Civilization A	(4)
Total Quarter Hours		16
Quarter 3		
ED 4005	Integrated Language Skills Seminar	1
ENG 1111	College Writing 2	4
MTH 4040	College Mathematics for Business*	4
HST 4111	History of Civilization B	4
MGT 4110	Survey of Business and Management	(4)
<i>or</i>	<i>or</i>	
ECN 4601	Economics 1	(4)
Total Quarter Hours		17

*Students will be placed in math levels depending on placement test results.

more. . .

Sample One-Year Program, Criminal Justice Track

		quarter hours
Quarter 1		
ED 4003	Integrated Language Skills A	4
ENG 4013	Fundamentals of English 1	4
MTH 4010	Mathematical Preliminaries 2*	4
SOC 4010	Principles of Sociology 1	(4)
<i>or</i>	<i>or</i>	
HST 4110	History of Civilization A	(4)
Total Quarter Hours		16
Quarter 2		
ED 4004	Integrated Language Skills B	4
ENG 4014	Fundamentals of English 2	4
MTH 4020	Functions and Algebra*	4
HST 4110	History of Civilization A	(4)
<i>or</i>	<i>or</i>	
SOC 4010	Principles of Sociology 1	(4)
Total Quarter Hours		16

*Students will be placed in math levels depending on placement test results.

Quarter 3		
ED 4005	Integrated Language Skills Seminar	1
ENG 1111	College Writing 2	4
MTH 4030	Applications of Algebra*	4
HST 4111	History of Civilization B	
SOC 4011	Principles of Sociology (or Directed Elective)	(4)
Total Quarter Hours		17

*Students will be placed in math levels depending on placement test results.

Sample One-Year Program, Health-Science Track

		quarter hours
Quarter 1		
ED 4003	Integrated Language Skills A	4
ENG 4013	Introductory Writing 1	4
MTH 4010	Mathematical Preliminaries 2*	4
CHM 1110	General Chemistry Preliminaries	5
Total Quarter Hours		17
Quarter 2		
ED 4004	Integrated Language Skills B	4
ENG 4014	Introductory Writing 2	4
MTH 4020	Functions and Algebra*	4
CHM 1111	General Chemistry 1	5
Total Quarter Hours		17
Quarter 3		
ED 4005	Integrated Language Skills Seminar	1
ENG 1111	College Writing 2	4
MTH 4030	Applications of Algebra*	4
BIO 1142	Basic Animal Biology	4
SOC 4010	Principles of Sociology 1	4
Total Quarter Hours		17

*Students will be placed in math levels depending on placement test results.

PROFESSIONAL AND CONTINUING EDUCATION

The days when people worked thirty, forty, or even more years for the same company and retired with a heartfelt handshake and a gold watch are long gone. Today, our rollercoaster job market, where downsizing, mergers, globalization, and technology have all played a role in creating an environment where neither the company nor the employee has long-term loyalty, has spawned a new and very different kind of employee. It is no longer enough to be a specialist or an expert in any one field. Today, we must have combinations of multiple skills, for example, computer, communication, entrepreneurial, and we must be able to change and add to that combination skill set as the job and the marketplace demand.

Once, earning a bachelor's degree signified the end of formal education and training and the beginning of our career. Today, earning that degree is only a benchmark in our lives. It has become evident that we will never move away from education and into a career but that our education and careers will be intertwined throughout our lives.

About Professional and Continuing Education at Northeastern

Program formats are as diverse and as flexible as the needs of our program participants and include part-time evening courses, certificates, seminars, satellite- and on-line-based training, and on-site training. All programs are designed to teach practical skills that meet the growing and changing needs of a wide number of fields and professions. This section of the Bulletin is arranged according to these major areas. Within each area there are a number of different programs available, including a variety of certificate programs, special programs for graduate school preparation, and programs offering preparation for certification and licensing examinations:

- American Sign Language
- Building Design and Management
- Business and Management
 - Accounting and Finance
 - General Business and Management
 - Operations and Project Management
- Communications and the Arts
- Computer Technology and Information Systems
 - Internet/Web Technology
 - Advanced Web Technology
 - Network and Systems Administration
 - Programming, Systems Analysis, and Software Engineering
 - Computer Applications
 - Industry-Focused Technology
- English Language Center
- Environmental Health and Safety
- Health Professions
- Paralegal Studies
- Alternative Delivery Systems

Special Programs Designed to Prepare You for Graduate School

Professional and Continuing Education offers a variety of convenient course offerings of excellent quality for students who need to take background courses in preparation for application to graduate or professional schools. Among these are pre-med, preparation for a variety of allied health programs, pre-MBA, and math and computer programming courses needed to prepare for entrance into computer science.

Individual Course Offerings

Professional and Continuing Education's open enrollment system makes it easy to take just a course or two that are of interest to you. Whether to enhance your professional skills or for personal enrichment, there are more than 2,000 course offerings each year from which to choose. From communication and the arts to American Sign Language, project management, international business, health information administration, paralegal studies, computer programming, JAVA, HTML, Web design and administration, we've got something to offer everyone. You need not feel like you must pursue a degree, certificate, or special program to take advantage of what Professional and Continuing Education has to offer. Academic advisors are always available to assist with program or course selection.

Special Career Transition

Courses: If you plan to make a career change in the near future, you may benefit from the following courses.

- CD 4100 *Managing Career Transitions* (3 q.h.)
- CD 4102 *Career Decision Making* (1 q.h.)
- CD 4104 *Career Planning/Self Marketing* (1 q.h.)

These career transition courses help students make sound career plans, anticipate and prepare for change, navigate a highly competitive marketplace, and develop professional behaviors that make them resilient to market fluctuations. These courses award elective credit that may be applied to any degree program, they can greatly enhance a certificate program, or they can be taken as a stand-alone experience. Complete course descriptions can be found on pp. 126-127. Free services offered by the Department of Career Services to all University College and Professional and Continuing Education students can be found on pp. 10-11.

Concentrated Certificates with Specific Career Applications

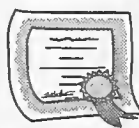
Although many students attend college to obtain a degree, a growing number of continuous learners have discovered the benefits of enrolling in shorter-term certificate programs offered by Professional and Continuing Education at Northeastern University. Each program offers a foundation of knowledge designed to provide the expertise needed for the attainment of specialized professional skills. Specifically, these programs are designed to:

- convey a cohesive base of job-related skills
- enhance career prospects within and outside one's employment setting
- offer marketable expertise to make career changes feasible
- prepare for licensing in selected specialized areas
- present manageable learning alternatives to an undergraduate or graduate degree that may be completed in one or two years.

There are three types of certificates offered by Professional and Continuing Education:

Credit Certificate Programs

These can serve as the first steps toward degree completion, count toward elective requirements in a degree program, or stand alone as a separate professional development program. Many students with degrees come back to school to obtain a certificate in a specialized area. These programs can often be helpful to job or career changers who need to build skills in order to be marketable. Most programs are offered at a variety of times and locations. Please refer to page 212 for information about entering and completing credit certificate programs.



Graduate-Level Certificate Programs for Those with Relevant Experience and Undergraduate Degrees

Several certificate programs are designed for students at advanced levels of study. These programs either have pre-requisite background requirements or require completion of a certain number of credits prior to admission. They also require an application and completion of a bachelor's degree. Students who complete a graduate certificate may be able to transfer some or all of their credits into various master's degrees, but each individual institution and program sets its own policies. Refer to page 223 for more information.



Certificate of Professional Achievement (non-credit)

If you're a seasoned professional who is under increasing pressure to update your skills and expertise on a regular basis, Professional and Continuing Education non-credit certificate of professional achievement programs may be just the answer. These programs deliver everything required to stay ahead—the most advanced faculty, cutting-edge curriculum, and insight on what's happening in your specific field. If you want to be the best in your field, consider learning from faculty members who are known and respected in their industry and who are leading practitioners in the fields in which they teach. Please refer to page 224 for Policies and Procedures for Non-Credit Certificate Programs.



Programs to Prepare You for Certification and Licensing Examinations

Many students find it helpful to their career position and job mobility to earn special certifications, licenses, and professional designations. Professional and Continuing Education provides a number of courses and programs that prepare students for such examinations. Although some of these courses may be taken for credit and thus may apply toward degree studies, most are non-credit offerings tailored to specific professional needs. Among these programs are preparation for the

- Certified Financial Planner (CFP®)
- Chartered Financial Analyst (CFA®)
- Professional in Human Resources (PHR)
- APICS and NAPM certifications
- PE Licensing
- Certified Hazardous Materials Manager (CHMM)
- Project Management Professional (PMP)
- Certified Payroll Professional (CPP)
- Real Estate salesperson/broker examinations.

These preparation programs are listed throughout the Professional and Continuing Education section of this *Bulletin*.

American Sign Language

American Sign Language (ASL) is the primary language used by the Deaf Community in the United States and Canada. A language expressed gesturally and received visually, ASL is not patterned after, or derived from, English or any other spoken language. The Deaf Community uses ASL to express the wit, poetry, and folklore, as well as to preserve and share the values and rich cultural experiences of the Community. Conversational competence in ASL is one prerequisite for acceptance into the Deaf Community and is essential for anyone with the need or interest in interacting with the Deaf Community for professional purposes. Those interested in interacting with members of the Deaf Community for personal or professional reasons will want to consider the benefits offered them in the ASL Program and the Deaf Studies Program.

American Sign Language Certificate Program



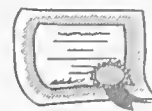
Developed to assist students in developing conversational competence in ASL, this program offers students opportunities to develop their language skills by practice in the classroom and by interaction within the Community. Students are encouraged to participate in a range of targeted interactions both inside the classroom and in the Community to help them gain confidence in their ability to communicate with Deaf people.

			quarter hours
ASL 4101	ASL 4102	American Sign Language 1*, 2*	8
ASL 4201	ASL 4202	Intermediate American Sign Language 1*, 2	8
ASL 4301	ASL 4302	Advanced American Sign Language Proficiency 1, 2	8

Total Quarter Hours (Possible transfer credit for ASL 4101, ASL 4102, ASL 4201: 12 quarter hours; all other credits must be completed in residence. To receive this certificate, students must have obtained a 3.0 cumulative quality-point average. To remain in good standing in the program, a student must maintain a 3.0 q.p.a. **24**

*A language proficiency examination is available for these courses; the credits will show as transfer credit. For more information, call 617.373.3064 (voice only) or 617.373.3067 (TTY only). The courses required for the American Sign Language Certificate are scheduled at the Boston campus.

Deaf Studies Certificate Program



Developed to provide the student with an in-depth understanding and exploration of various linguistic and cultural facets of the Deaf Community, this program is essential for anyone wishing to gain a deeper understanding and appreciation of Deaf people, their language, and their culture. The program is also required for anyone wishing to pursue the interpreting certificate. Since each course with an ASL prefix is taught in ASL (without spoken English interpretation), students from the ASL certificate program continue to develop and enhance their ASL skills by interacting in ASL in an academic setting.

		quarter hours
ENG 4501	Linguistics	3
ASL 4410	Linguistics of American Sign Language	3
ASL 4412	American Deaf Culture	3
ASL 4411	Deaf History	(3)
or	or	
ASL 4413	ASL Literature	(3)
ASL 4415	Deaf Community Practicum	3
ASL 4600	Introduction to Interpreting	3

Total Quarter Hours **18**
To receive this certificate, students must have obtained a 3.0 cumulative quality-point average. To remain in good standing in the program, a student must maintain a 3.0 q.p.a.

The courses for the Deaf Studies Certificate are scheduled at the Boston campus. See also the American Sign Language Certificate, left; for a more advanced program, see ASL-English Interpreting Certificate, page 72.

For more information about
ASL, call 617.373.2416;
TTY 373.2825.
www.neu.edu/asl

American Sign Language-English Interpreting Certificate Program



The Program

Designed to offer students education and training as sign language interpreters, the American Sign Language-English Interpreting Certificate Program was developed for students already proficient in American Sign Language and English and familiar with Deaf culture. The courses in the program cover the theory and practice of interpreting. Students who are looking for entry-level staff positions or freelance assignments may find this program helpful. Students preparing for state quality assurance screening and national evaluation may also benefit from this program.

To obtain this certificate, students must have obtained a 3.0 cumulative quality-point average. To remain in good standing in the program, a student must maintain a 3.0 q.p.a.

Admission

Candidates for admission must complete the American Sign Language and Deaf Studies certificates and a screening procedure before entering the program. The screening will assess overall conversational competence in ASL and spoken English, as well as production and comprehension of targeted syntactic structures of ASL.

For More Information

For the introductory programs (ASL and Deaf Studies Certificates), please see page 71. Applications and further information are available from the ASL Director, 405 Meserve Hall, Northeastern University, Boston, MA 02115, 617.373.3064 (voice only) or 617.373.3067 (TTY only).

				quarter hours
ASL 4601	ASL 4602	ASL 4603	The Interpreting Process 1, 2, 3	12
ASL 4607			Interpreting Lab	4
ASL 4608			Practicum 1	4
ASL 4609			Contrastive Analysis for Interpreters	4
ASL 4610			Interpreters at Work	3
ASL 4612			Interpreter Role and Ethics	4
ASL 4613			Practicum 2	4
Elective				3
Suggested: ASL 4604; CMN 4111; CMN 4151; CMN 4154; CMN 4221;				
CMN 4231; PHL 4165; PHL 4235; SOA 4155; SOC 4100; SOC 4154; SOC 4170; SOC 4177;				
SOC 4178; SOC 4205; SOC 4240; THE 4120; THE 4140; THE 4250.				

Total Quarter Hours (Possible transfer credit: 12 quarter hours)

38

The courses required for the American Sign Language-English Interpreting Certificate are scheduled at the Boston campus.

Building Design and Management Program

The Building Design and Management Program was created in 1982 to meet the growing and changing needs of New England's building and construction industries. Professionals entering the program can enhance their skills and develop the specialized knowledge needed for success in today's building and construction industries.

The Building Design and Management Program teaches practical skills through small, focused group instruction. You will carry field-proven solutions straight from the classroom to the job site.

The Building Design and Management Program offers a wide range of professional development courses and certificate programs in:

- Building and Construction Technology
- Construction Cost Estimating
- Construction Project Management
- Construction Superintendent
- Facilities Management
- Facilities Management, Advanced
- Fire Protection Systems
- HVAC Systems Design
- Real Estate Inspection
- Professional Engineering

Our formats are as diverse and flexible as the needs of program participants and include part-time evening courses, certificates of professional achievement, seminars, satellite-based services, and corporate on-site training.

Building and Construction Technology

This certificate was developed by Northeastern University for contractors, project managers, home builders, and construction personnel. Our certificate focuses on the key principles of building and construction technology. Seven courses complete the certificate as outlined below. Many participants take two courses per quarter, enabling them to complete their certificate in about one year. Upon successful completion, Northeastern University will award a Certificate of Professional Achievement in Building and Construction Technology.

Choose any three of the following courses:

- CIV 5108 Design of Building Plumbing Systems
- CIV 5109 Design of Building Electrical Systems
- CIV 5111 Architectural Technology and Building Materials
- ME 5103 Introduction to HVAC Systems Design I

Choose any four of the following courses:

- CIV 5119 Managing Construction Contracts
- CIV 5115 Construction Cost Estimating and Bidding
- CIV 5170 Construction Blueprint Reading
- CIV 5100 Cost Effective Design/Build Construction
- CIV 5051 Computer Basics for Building Technology
- CIV 5052 Computer Applications for Building Technology

Note: You may apply no more than two courses to another certificate.

Construction Cost Estimating

Designed for those who desire to pursue the training necessary for a career as a professional construction cost estimator, this seven-course certificate program provides participants with information and hands-on practical skill. The courses are offered sequentially so that each course builds on the previous one. It is recommended that participants take one or two courses per quarter in the order listed below.

Choose any six of the following courses:

- CIV 5230 Construction Blueprint Reading for Estimators
- CIV 5111 Architectural Technology and Building Materials
- CIV 5281 Quantity Takeoff for Estimating
- CIV 5280 Unit Price Estimating
- CIV 5314 Advanced Topics in Cost Estimating
- CIV 5221 Electrical Cost Estimating
- CIV 5010 Cost Estimating and Bidding Workshop
- CIV 5051 Computer Basics for Building Technology
- CIV 5052 Computer Applications for Building Technology

Choose one additional course from all program offerings.

Note: You may apply no more than two courses to another certificate.

For more information, call
781.320.8026
www.neu.edu/con-ed/bdm

Construction Project Management



This certificate was developed by Northeastern University to give construction professionals a solid, practical, and strong theoretical foundation for management careers in the construction industry. The certificate covers the essentials of estimating, scheduling, and cost management, along with many construction project management techniques used on today's projects. A knowledge of blueprint reading and estimating and bidding is assumed. See *Construction Blueprint Reading* (CIV 5170) and *Construction Cost Estimating and Bidding* (CIV 5115) if necessary. Seven courses complete the certificate, as outlined below. Many participants take two courses per quarter, enabling them to complete their certificate in about one year. Upon successful completion, Northeastern University will award a Certificate of Professional Achievement in Construction Project Management.

Required Core Courses:

- CIV 5245 Construction Project Management 1
- CIV 5246 Construction Project Management 2
- CIV 5114 Construction Law

Choose any four of the following courses:

- CIV 5119 Managing Construction Contracts
- CIV 5134 Scheduling Construction Projects
- CIV 5187 Accounting for Construction Management
- CIV 5332 Construction Management: Organizing and Managing a Construction Business
- CIV 5174 Supervisory Management
- CIV 5240 Effective Construction Cost Control
- ENV 5640 Fundamentals of Construction Safety

Note: You may apply no more than two courses to another certificate.

Construction Superintendent



This certificate was developed by Northeastern University for construction managers, construction superintendents, project managers, and site supervisors. Our certificate is unique in that it exposes you to both the functional skills and the management skills you will need as a construction superintendent. The courses are designed to enable you to manage contracts; cost, estimate, bid, and schedule projects; and understand the legal aspects of the construction business. Seven courses complete the certificate, as outlined below. Many participants take two courses per quarter, enabling them to complete their certificate in about one year. Upon successful completion, Northeastern University will award a Certificate of Professional Achievement in Construction Superintendent.

Required Core Courses:

- CIV 5119 Managing Construction Contracts
- CIV 5134 Scheduling Construction Projects
- CIV 5115 Construction Cost Estimating and Bidding
- CIV 5168 Construction Supervisor's Building Code Review

Choose any three of the following courses:

- CIV 5114 Construction Law
- CIV 5100 Cost Effective Design/Build Construction
- CIV 5111 Architectural Technology and Building Materials
- CIV 5174 Supervisory Management
- ENV 5640 Fundamentals of Construction Safety
- CIV 5051 Computer Basics for Building Technology
- CIV 5052 Computer Applications for Building Technology

Note: You may apply no more than two courses to another certificate.

Facilities Management



Geared to facilities plant managers, systems administrators/technicians, property managers, and maintenance personnel, our seven-course certificate provides participants with the "top down" view required to manage and control a facility's operating system. Many students take two courses per quarter, enabling them to complete their certificate in about one year.

Required Core Courses:

- CIV 5228 Principles of Facilities Management 1
- CIV 5174 Supervisory Management

Choose two base skills:

- ME 5103 Introduction to HVAC Systems Design 1
- CIV 5109 Design of Building Electrical Systems
- CIV 5108 Design of Building Plumbing Systems

Choose three elective skills:

- CIV 5307 Introduction to Fire Protection Systems
- CIV 5232 Landscape and Grounds Management
- CIV 5119 Managing Construction Contracts
- ME 5307 Intelligent Building Systems
- CIV 5371 Efficient Design and Operating Strategies for Building Designers and Managers
- CIV 5051 Computer Basics for Building Technology
- CIV 5052 Computer Applications for Building Technology

Note: You may apply no more than two courses to another certificate.

For more information, call
781.320.8026.
www.neu.edu/cont-ed/bdm

Advanced Facilities Management

This advanced certificate was developed by Northeastern University for facilities plant managers, systems administrators/technicians, property managers, and maintenance personnel who are interested in increasing the knowledge for the new demands placed on facilities managers. These demands include environmental/safety compliance, indoor air problems, energy management and conservation, and project management techniques. Seven courses complete the certificate as outlined below. Many students take two courses per quarter, enabling them to complete their certificate in about one year. Upon successful completion, Northeastern University will award a Certificate of Professional Achievement in Advanced Facilities Management.

Required Core Courses:

- CIV 5229 Principles of Facilities Management 2
- ENV 5210 Environmental Compliance Management Overview
- ENV 5624 Occupational Health and Safety Overview

Choose any two concentrations:

Environmental/Safety Concentration *Choose two:*

- ENV 5650 Fundamentals of Industrial Hygiene
- ENV 5649 Industrial Safety
- ENV 5215 Pollution Prevention
- ENV 5216 Environmental Site Evaluations

Energy/Indoor Air Quality Concentration *Choose two:*

- ME 5282 HVAC: Indoor Air Quality
- CIV 5340 Energy Conservation and Demand Side Management
- ME 5307 Intelligent Building Systems
- ME 5031 Energy Management Systems

Management Concentration *Choose two:*

- CIV 5119 Managing Construction Contracts
- CIV 5245 Construction Project Management 1
- CIV 5114 Construction Law
- CIV 5115 Construction Cost Estimating and Bidding

Note: You may apply no more than two courses to another certificate.

For more information, call 781.320.8026.
www.neu.edu/cont-ed/bdm



Fire Protection Systems

Developed for fire systems technicians, fire protection engineers, construction contractors, industrial managers, industrial engineers, and local/state government authorities who are or will be working for private business, state and local governments, and subcontractors, this is a specialized study of the design and installation of fire protection systems. Seven courses complete the certificate; many students take two courses per quarter, enabling them to complete their certificate in about one year.

Required Core Courses:

- CIV 5307 Introduction to Fire Protection Systems
- CIV 5321 Fundamentals of Fire Alarm Systems
- CIV 5126 Understanding the Massachusetts State Building Code

Choose any two of the following courses:

- CIV 5271 Special Protection and Extinguishing Systems—Principles and Design
- CIV 5311 Applications of Fire Alarm Systems
- CIV 5373 Fire Protection Systems—Testing and Maintenance
- CIV 5255 Managing Fire Prevention and Building Codes

Choose any two of the following courses:

- CIV 5243 Fire Protection Laws, Regulations, and Standards*
- CIV 5239 Hydraulic Calculations—Automatic Sprinkler Systems*
- CIV 5244 Fire Pump Design*
- CIV 5238 Automatic Standpipe/Sprinkler Systems*
- CIV 5237 Water Supply/Water-Based Suppression Systems*

Note: You may apply no more than two courses to another certificate.

*These courses meet for five consecutive weeks and are 10 hours in duration.



HVAC Systems Design

Developed for mechanical engineers, HVAC consultants and contractors, facilities managers, systems administrators, and HVAC installers, this specialized study in the design and implementation of HVAC systems includes the use of computer-based tools and controls. Seven courses complete the certificate as outlined below; many students take two courses per quarter, enabling them to complete their certificate in about one year.

Required Courses:

We recommend that participants take courses in the sequence listed below.

- ME 5103 Introduction to HVAC Systems Design 1
- ME 5304 HVAC Systems Design 2
- ME 5301 HVAC Temperature Controls and Systems Design
- ME 5206 Testing, Adjusting, and Balancing HVAC Systems/Air and Water
- ME 5182 Mechanical Cost Estimating and Bidding

Choose any two of the following courses:

- ME 5305 HVAC Project
- ME 5100 Direct Digital Controls and Energy Management Systems
- ME 5282 HVAC: Indoor Air Quality
- ME 5350 Fundamentals of Steam & Hydronic Systems Design and Application
- CIV 5051 Computer Basics for Building Technology
- CIV 5052 Computer Applications for Building Technology

Note: You may apply no more than two courses to another certificate.



Real Estate Inspections

Designed for real estate professionals including renovators, developers, contractors, real estate brokers, and appraisers, this certificate program focuses on the theory and practice of home and commercial inspection and is perfect for students who are or will be working for banks, private businesses, state and local governments, and as small business owners. Three 22-hour and five 10-hour courses complete the certificate as outlined below. Many participants complete their certificate in about one year. A background in construction, mechanical trades, architecture, or engineering is strongly suggested.

Required (22-hour courses):

- CIV 5172 Real Estate Inspections 1 (Residential)
- CIV 5220 Electrical Inspections
- ME 5208 Heating Systems Inspections

Choose any five of the following 10-hour courses:

- CIV 5247 Inspecting Mechanical Systems*
- CIV 5248 Report Writing for Home Inspectors*
- CIV 5249 Building Codes for Home Inspectors*
- CIV 5250 Home Inspection Field Trips*
- CIV 5251 Inspecting Commercial Real Estate*
- CIV 5370 Real Estate Environmental Inspections—Phase 1

Note: You may apply no more than two courses to another certificate.

*These courses meet for five consecutive weeks and are 10 hours in duration.



Professional Engineering Program Review Courses

Offered at the Main Boston, Dedham, and Burlington campus locations, these intensive review courses prepare students for the Fundamentals of Engineering (FE) License Exam and the Principles and Practice (PE) License Exam.

The Fundamentals of Engineering (FE) Exam Prep Course meets for 10 weeks, 1 night per week, for 3 hours. Covers Chemistry, Computers, Dynamics, Thermodynamics, Ethics, Statics, Electrical Circuits, Fluid Mechanics, Material Science/Structure of Matter, Engineering Economics, Mechanics of Materials, and Mathematics. In addition, you will select one of the following disciplines for a focused area of study: civil, chemical, electrical, industrial, mechanical, and general.

The Principles and Practice (PE) License Exam Prep Course meets for 11 weeks, 1 evening per week, for 3 hours and covers your choice of one of the following disciplines: Civil Engineering—Environmental focus, Civil Engineering—Structural focus, Chemical Engineering, Mechanical Engineering, Electrical Engineering, Industrial Engineering, and Fire Protection Engineering.

For information on how to register,
call 781.320.8026.
www.neu.edu/cont-ed/FE-PE

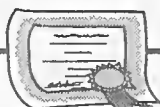
For more information, call
781.320.8026.
www.neu.edu/cont-ed/bdm

Business and Management

In an economy marked by bank mergers and acquisitions, reorganizations, changing tax and business laws, and, of course, technology and globalization, it is no wonder that the fields of accounting, banking, and finance are bursting with career opportunities. Whether it's learning to prepare a financial statement or how to wade through the volume of material necessary to sit for the CPA, CFP, or CFA exams, industry professionals will not only provide comprehensive instruction but also help you develop your judgment capabilities, enhance your decision-making skills, nurture your leadership qualities, and empower you to take your career to the next level of professional development.

Accounting and Finance

Accounting Certificate Program

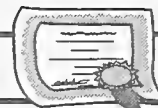


Designed to enable students to gain a foundation of knowledge in the accounting field, this program teaches how to compile, analyze, and prepare critical business and financial records. The field is well-suited for those interested in developing accounting skills for use in a current management- or accounting-related position or for those seeking to obtain an entry-level accounting-related position.

				quarter hours
ACC 4101	ACC 4102	ACC 4103	Accounting Principles 1, 2, 3	9
ACC 4301	ACC 4302	ACC 4307	Intermediate Accounting 1, 2, 3	9
ACC 4310			Cost Accounting 1	3
FI 4301			Principles of Finance	3
Total Quarter Hours (Possible transfer credit: 9 quarter hours)				24

The courses required for the Accounting Certificate are scheduled at the Boston, Burlington, Dedham or Westwood, Downtown, Framingham, Milford, and Weymouth campuses. The credits earned for the certificate may be applied toward undergraduate degree requirements.

Advanced Accounting Certificate/(Pre-2002) CPA Preparation



Designed around the minimum CPA educational requirements, for those possessing an approved bachelor's degree and meeting all other CPA exam requirements, this program is intended to prepare participants for positions in major accounting fields, including auditing, financial analysis, taxes, budgeting and control, cost accounting, and asset management.

To enter this program, participants must have completed at least 80 quarter hours of college work, including Accounting Principles 1, 2, and 3 or the equivalent. In addition, prerequisites of each course must be met. Students enrolled in the University College BSBA Accounting degree are not eligible for this certificate.

				quarter hours
ACC 4301	ACC 4302	ACC 4307	Intermediate Accounting 1, 2, 3	9
ACC 4408			Intermediate Accounting 4	3
ACC 4310			Cost Accounting 1	3
ACC 4411			Cost Accounting 2	3
ACC 4425	ACC 4426		Auditing 1, 2	6
ACC 4440	ACC 4441		Federal Income Taxes 1, 2	6
ACC 4400			Accounting Information Systems	3
BL 4101			Law 1	3

Total Quarter Hours (Possible transfer credit: 9 quarter hours) **36**

For more information, call 617.373.2418 or 617.373.2419.

The courses required for the Advanced Accounting Certificate are scheduled at the Boston, Burlington, and Downtown campuses.

CPA exam requirements are subject to change and therefore, University College cannot guarantee that this program will provide students with the minimum educational requirements by the time they sit for the exam.

For more information, call 617.373.2418 or 373.2419.

www.neu.edu/uc

CPA-Certified Public Accountant Exam Preparation

University College's Advanced Accounting Certificate is intended to meet the minimum educational requirements necessary to become a CPA. If you hold a bachelor's degree from an approved college and meet the experience requirement, this short-term program may be the career stepping stone you've been looking for.

For more information, call
617.373.2418 or 373.2419.
www.neu.edu/uc

For more information, call Northeastern's
Financial Services Institute at 617.373.7972.
www.neu.edu/cont-ed

Certified Financial Planner®

The Certified Financial Planner designation, or CFP®, has become the standard to measure the competence of today's personal financial planner. CFPs are individuals who have the technical knowledge and proficiency in areas critical to developing a sound financial plan. Northeastern sponsors the CFP Program as an affiliate of the College for Financial Planning of Denver, Colorado. This comprehensive course of study is a recognized program leading to the CFP designation.

- FI 5701 CFP 1 Financial Planning Process and Insurance
- FI 5702 CFP 2 Investment Planning
- FI 5703 CFP 3 Income Tax Planning
- FI 5704 CFP 4 Retirement Planning and Employee Benefits
- FI 5705 CFP 5 Estate Planning
- FI 5711 CFP Certification Exam Review Course

Chartered Financial Analyst (CFA®) Exam Preparation

The purpose of Northeastern University's CFA® Review course for the Level I exam is to help CFA candidates attack the volume of difficult material contained in the Body of Knowledge required by AIMR® and break it down into more manageable modules. In a classroom format of lecture, discussion, and practical application, participants learn how to calculate and apply the necessary financial concepts.

FI 5300 CFA Level 1 Review

Finance Certificate Program



Intended to help students get the skills they need to assume more responsibility on the job, this program can help get you started on a finance career in banks, corporations, brokerage firms, schools, and government and social agencies, as well as help you advance to a management position.

				quarter hours
ACC 4101	ACC 4102	ACC 4103	Accounting Principles 1, 2, 3	9
FI 4301			Principles of Finance	3
FI 4302			Financial Management	3
FI 4310			Investment Principles	3
<i>Choose two of the following:</i>				
FI 4320			Credit Principles	(3)
FI 4325			Budgeting and Planning	(3)
FI 4365			Business and Finance Information	(3)
FI 4370			The Mutual Funds Industry	(3)

Total Quarter Hours (Possible transfer credit: 9 quarter hours) 24

The courses required for the Finance Certificate are scheduled at the Boston, Brockton, Burlington, Dedham or Westwood, Downtown, Framingham, Milford, and Weymouth campuses. The credits earned for the certificate may be applied toward undergraduate degree requirements.

For more information, call 617.373.2418 or 617.373.2419.
www.neu.edu/uc

General Business and Management

Business Administration Certificate Program



Intended to help students get started or catch up on the basics of business, this program is often taken as a foundation for further study of the various facets of business administration.

	quarter hours	
ACC 4101	Accounting	
ACC 4102	Principles 1, 2	6
HRM 4301	Organizational	
HRM 4302	Behavior 1, 2	6
MKT 4301	Introduction to	
	Marketing 1	3
MGT 4101	Introduction to	
MGT 4102	Business and	
	Management 1, 2	6
MGT 4358	Today's	
	Management	
	Issues	3

Total Quarter Hours (Possible transfer credit: 9 quarter hours) **24**

The courses required for the Business Administration Certificate are scheduled at all campuses. The credits earned for this certificate may be applied toward undergraduate degree requirements.

Business Performance Series™

These programs and seminars are designed to polish and update skills of business professionals. Offered in seminar format at the Dedham campus or on-site. Topics include:

- Project Management
- Skills for New Managers
- Software Tools for Business
- Operations Management and Purchasing
- Communication Skills for Managers
- The High-Performance Leader

For a listing of current seminars or to arrange an on-site visit with one of our Corporate Education experts, call 617.373.2419. Or visit our Web site at www.neu.edu/cont-ed

Skills for New Managers

You have excelled in your job and earned that managerial position, but are you ready to excel as a manager? The Skills for New Managers seminars are designed to provide you with effective management tools and skills you can use NOW! Whether you're entirely new to management or want to enhance the skill set you already possess, these seminars are an highly effective way of getting what you need quickly. All seminars in this program may be taken individually or as part of a five-course certificate.

Software Tools for Managers

These days, everyone needs to know how to capitalize on the latest technologies in order to maximize productivity. These seminars are a no-nonsense way to get up to speed quickly without having to become a computer specialist. Both one- and two-day seminars are taught using a hands-on approach. Topics range from utilizing hand-helds to measuring the effectiveness of your Web campaign; you can even learn how to create a Web page in a day.

For more information, call 617.373.2418 or 617.373.2419.
www.neu.edu/uc

Human Resources Management Certificate Program

Three Tracks



The rapidly changing and increasingly complex workplace has created a need for individuals with a variety of human resources related skills. The Human Resources Management Certificate utilizes three tracks to provide students with the ability to prepare for careers in compensation and benefits administration, general human resources management, or as a staffing and recruitment specialist.

			quarter hours
HRM 4301	HRM 4302	Organizational Behavior 1, 2	6
HRM 4310		Human Resources Management	3
HRM 4348		The Changing Work Force	3

Human Resources Management Track

HRM 4321	Wage and Salary Administration	3
HRM 4325	Training and Development	3
HRM 4333	Employment Rights	3
Any HRM elective		3

Compensation and Benefits Track

HRM 4321	Wage and Salary Administration	3
HRM 4322	Employee Benefits	3
HRM 4334	Human Resources Information Systems	3
FI 4340	The Planning and Funding of Employee Benefits	3

Staffing Specialist Track

CD 4100	Managing Career Decisions	3
HRM 4320	Techniques of Employee Selection	3
HRM 4334	Human Resources Information Systems	3
HRM 4347	Managing People in International Settings	3

Total Quarter Hours (Possible transfer credit: 9 quarter hours) **24**

For more information, call 617.373.2418 or 617.373.2419.

The courses required for the Human Resources Management Certificate are scheduled at the Boston, Brockton, Burlington, Dedham or Westwood, Downtown, Framingham, Milford, and Weymouth campuses.

The credits earned for this certificate may be applied toward undergraduate degree requirements.

Human Resources Management



This course is designed to help human resources professionals achieve their professional development goals with practical, "real world" information within each of the functional areas of human resources management. The course content uses the SHRM® Learning System and reflects the general body of knowledge tested by the Human Resources Certification Institute (HRCI) for the Professional in Human Resources (PHR) designation. It also serves as an excellent preparation for the PHR and SPHR exams.

HRM 5590 Human Resources Management

For more information about exam dates and exam registration, please call the HRCI at 703.548.3440, ext. 5770 or Northeastern University's Financial Services Institute at 617.373.7972. TTY 373.2865, www.neu.edu/cont-ed/FSI.html

Gone are the days of the Personnel Manager whose defined role it was to appraise and train. Today's HR Managers have to recognize that organizational characteristics such as culture, strategy, size, product, and life cycle have an impact on human resources.

Brendan Bannister
Northeastern University
College of Business Administration
and University College HRM
Consultant

Human Resources Management Graduate Certificate Program



This program is designed for working professionals, primarily at the mid-career level, who already have relevant work experience in human resources management. Students must have a bachelor's degree in order to apply to the program. Admission and application policies and procedures can be found on p. 223.

		quarter hours
HRM 3100	Organizational Behavior	3
HRM 3110	Total Compensation	3
HRM 3120	Strategic Recruitment, Training and Performance Management	3
HRM 3130	Employee Rights and Employer Obligations	3
HRM 3140	High-Performance Human Resources Systems and Development	3
HRM 3150	Change, Challenge, and Competence	3

Total Quarter Hours (Possible transfer credit: 3 quarter hours) **18**

Courses for this program are scheduled at the Downtown campus. For a free brochure, call 617.373.2425. www.neu.edu/uc

Management Certificate Program



Developed to offer students the opportunity to learn skills in all areas of management, this program can be the key to career advancement in today's business world. This is an essential program for those individuals in management positions who lack formal management training.

		quarter hours
FI 4110	Financial Basics for Managers	3
HRM 4301	HRM 4302 Organizational Behavior 1, 2	6
MIS 4114	Introduction to PC Software	3
MGT 4101	MGT 4102 Introduction to Business and Management 1, 2	6
MGT 4103	Introduction to Business and Management 3	3
MGT 4320	Managing Change	3
MGT 4358	Today's Management Issues	(3)
or	or	
MIS 4390	Project Management for Information Systems	(3)

Total Quarter Hours (Possible transfer credit: 9 quarter hours) 27

The courses required for the Management Certificate are scheduled at the Boston, Burlington, Dedham or Westwood, Downtown, Framingham, and Weymouth campuses. The credits earned for this certificate may be applied toward undergraduate degree requirements.

For more information, call
617.373.2418 or 617.373.2419.
www.neu.edu/uc

International Business and Culture Certificate Program



Designed to provide students with skills needed in the global marketplace, this certificate begins with MGT 4348 *The Global Marketplace* and SOA 4325 *Cultures of the World* and allows students to build on their strengths and interests through electives in several areas.

Required		q. h.
MGT 4348	The Global Marketplace	3
SOA 4325	Cultures of the World	3

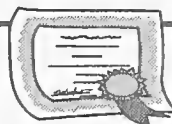
Electives 18

Students choose 6 courses from the politics, culture, and trade groupings in the electives in the International Politics, Culture, and Trade degree. See page 55.

Total Quarter Hours 24

NOTE: Students planning to earn the International Politics, Culture, and Trade degree may have a maximum of 44 q.h. in business subjects.

Marketing Certificate Program



Two Tracks

Designed to provide students with a solid foundation in the marketing skills currently in demand by business, the program is excellent preparation for those individuals seeking to advance or get started in a marketing field. The Promotions Track focuses on the elements of promotion strategy in which organizations invest most heavily. The New Media Track focuses on electronic marketing and other, more recently adopted, approaches to marketing. In both cases, students will learn the basics of the marketing mix, including product, price, place, and promotion.

Core Courses	quarter hours
MKT 4301 Introduction to Marketing 1	3
MKT 4302 Introduction to Marketing 2	3
MKT 4320 Marketing Management	3
Promotions Track	
MKT 4310 Advertising Management 1	3
MKT 4315 Professional Selling Skills	3
MKT 4308 Direct Response Marketing	3
JRN 4335 Public Relations Basics	3
JRN 4350 Advertising Copywriting	(3)
or	
MIS 4347 Desktop Publishing for the PC	(3)
New Media Track	
MIS 4238 Introduction to the Internet	3
MKT 4305 Internet Marketing	3
MIS 4255 Electronic Commerce	3
MIS 4360 Computer Privacy and Security	(3)
or	
MIS 4245 Net Security and Legal Issues	(3)
MKT 4308 Direct Response Marketing	3

Total Quarter Hours (Possible transfer credit: 9 quarter hours) 24

The courses required for the Promotions Track are offered at Main Boston, Burlington, Downtown, Framingham, Milford, and Westwood. The courses required for the New Media Track are offered at Main Boston, Burlington, and Downtown. The credits earned for this certificate may be applied toward undergraduate degree requirements.

Nonprofit Management Graduate Certificate Program



This program is geared for professional managers at the mid-career level from nonprofit organizations, such as unions, fraternal organizations, country clubs, churches, arts and cultural organizations, historical societies, chambers of commerce, health and social services organizations, environmental groups, and educational organizations. Students must have a bachelor's degree in order to apply to the program. **The program can be completed in one year.** Admission and application policies and procedures can be found on p. 223.

Key Features of the Program

- An outstanding faculty with top-level practitioner experience
- A curriculum that teaches the core competencies needed for success as a nonprofit manager training in critical thinking, written and oral communication, team building, problem solving, and consideration of ethical issues infused across the entire curriculum
- An opportunity to share with a cohort of classmates who are nonprofit managers, experienced volunteers, and board members
- A convenient Boston location
- Program completion possible in one year (three quarters)
- Option to transfer select courses into a Northeastern University master's degree upon acceptance into a degree program (Master's in Public Administration, Master's in History)

	quarter hour
NPM 3100 Organization and Management of Nonprofit Organizations	3
NPM 3110 Legal and Governance Issues in Nonprofit Organizations	3
NPM 3120 Financial Management for Nonprofit Organizations	3
NPM 3130 Fundraising and Development for Nonprofit Organizations	3
NPM 3140 Grant and Report Writing	3
NPM 3150 Human Resources Management in Nonprofit Organizations	3
Total Quarter Hours: (Possible transfer credit: 3 quarter hours)	18

Courses for this program are scheduled at the Main Boston campus.

For a free brochure, call 617.373.2425.
www.neu.edu/uc

Real Estate Salesperson's Exam Preparation

The following course covers the basic principles and terminology of real estate and the practices of real estate brokerage, including appraisal, finance, development, management, and investment. Upon successful completion of this course, students may take the Massachusetts Real Estate Salesperson's Examination.

	quarter hours
RE 4303 Real Estate Fundamentals Intensive	6

For more information, call 617.373.2418 or 617.373.2419.
www.neu.edu/uc

Payroll Administration



Northeastern University, in association with the American Payroll Association (APA) and its Boston Chapter, offers two unique professional development programs that prepare participants for the CPP examination.

Who should attend

- Payroll Professionals preparing to take the CPP Certification Examination
- Recently hired or newly-promoted payroll administrators
- Personnel in service bureaus
- Payroll employees who need a broader understanding of benefit and tax administration
- Payroll supervisors or managers
- Benefits administrators
- Financial officers who have responsibility in payroll or complex federal law requirements in benefits, taxation, systems, and management
- Accounting and Finance Degree holders or candidates

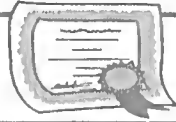
PAY 5276 Payroll Professional Learning Series Intensive—a comprehensive 54-hour payroll course, meeting 2 nights each week for 11 weeks, covers payroll basics through advanced-level topics.

PAY 5262 PayTrain Payroll Administration Program—an innovative, computer-based learning and training program designed for those who have a working knowledge of the payroll department's function and responsibilities. This accelerated, 30-hour course conducted over ten 3-hour classes begins with fundamental payroll topics and moves onto more complex issues.

See p. 209 for course descriptions.

For more information, call the Financial Services Institute at 617.373.7972.

Small Business Management and Entrepreneurship Certificate Program



This innovative program is designed to provide participants with the operational and strategic skills necessary for the creation or growth of an entrepreneurial enterprise. Along with the traditional small business start-up skills, participants will learn how to expand market-share and profitability while simultaneously learning how to effectively maintain the enterprise through the use of technology and sound management practices. Experienced small business owners may request a substitution for MGT 4370.

	quarter hours
ACC 4101 Accounting Principles 1	3
FI 4307 Small Business Finance	3
MGT Elective	(3)
MGT 4370 Entrepreneurship/Intrapreneurship	3
MGT 4371 Building a Profit Stream	3
MGT 4372 Using Technology in a Small Business	3
MGT 4373 Planning for New Ventures	3
MGT 4374 Growing the Ongoing Venture	3

Total Quarter Hours (Possible transfer credit: 9 quarter hours) **24**

The courses required for the Small Business Management and Entrepreneurship Certificate are scheduled at the Boston, Burlington, and Downtown campuses. The credits earned for this certificate may be applied toward undergraduate degree requirements.

Operations and Project Management

Logistics, transportation, operations management, purchasing and materials management, and operations technology together comprise what's called the Supply Chain. The Supply Chain is the network of suppliers, warehouses, distribution centers, and retailers through which materials are acquired and transformed into products and delivered to the customer. A Supply Chain Management certificate program provides an overview of the entire field. In addition, several courses can serve as preparation for APICS, CTL, and NAPM professional certifications. Non-credit professional development seminars are also offered in Purchasing and Project management.

APICS—Preparation for National Certification

The following courses are preparation for national exam certification leading to the title Certified Production and Inventory Control Manager (CPIM).

	quarter hours
OM 4321 Operations Planning and Control	3
OM 4358 Materials Requirements Planning (formerly PUR 4358)	3
OM 4370 Inventory Management (formerly PUR 4370)	3
OM 4390 Just-In-Time Manufacturing (formerly PUR 4390)	3
OM 4395 Master Production Scheduling (formerly PUR 4395)	3
OM 4396 Systems and Technologies (formerly PUR 4396)	3

Total Quarter Hours (Possible transfer credit: 9 quarter hours) 18

NAPM—Preparation for National Certification

The following course prepares students to take the NAPM certification exams leading to Certified Purchasing Manager (CPM). This course may be applied toward the Supply Chain Management Certificate and/or the associate's degree in Purchasing.

	quarter hours
OM 4351 Introduction to Purchasing (formerly PUR 4351)	3

PMP—Preparation for Certification Exam

The Project Management Body of Knowledge (PMBOK) defines knowledge an individual must possess to be recognized by The Project Management Institute as a Project Management Professional (PMP). In this seminar, the eight knowledge areas that comprise the PMP certification are examined.

PM 5505 PMP Exam Review

Project Management



These five, two-day seminars can be taken individually to satisfy professional and personal objectives or as a group for completion of the Project Management Certificate Program.

- PM 5504 Project Leadership
- PM 5500 Project Planning, Organization, and Control
- PM 5501 Estimation and Cost Management
- PM 5502 Risk Analysis and Management
- PM 5503 Project Procurement and Contract Management

Purchasing



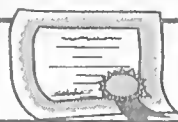
Each of these seminars will be conducted by the experienced purchasing professionals from Rowe Associates, Inc. These seminars earn continuing education hours to apply toward NAPM's CPM re-certification and/or APP reaccreditation requirements.

- Essentials of Purchasing®
- Advanced Purchasing StrategiesSM
- Improving Purchasing Performance
- Legal Aspects of PurchasingSM
- How to Purchase ServicesSM

For more information and
schedules, call 617.373.2418 or
617.373.2419.
www.neu.edu/uc

For more information on these
purchasing seminars,
call 617.373.7972.
www.neu.edu/cont-ed

Supply Chain Management Certificate Program



Three Tracks

The Supply Chain Management Certificate allows students to focus on one of three tracks: Operations Management, Logistics and Transportation, and Purchasing and Materials Management. Academic work covers introductory management and organizational behavior tools in the three tracks and topics on planning and control, distribution management, and production scheduling in individual tracks.

		quarter hours
OM 4330	Basics of Supply Chain Management	3
MGT 4101	Introduction to Business and Management 1	3
OM 4301	Introduction to Operations Management	3
OM 4351 (formerly PUR 4351)	Introduction to Purchasing	3
TRN 4302	Introduction to Logistics	3

Choose one of the following three tracks:

I. Operations Management Track

Take the following three courses:

OM 4314	Productivity Enhancement and Quality	3
OM 4321	Operations Planning and Control	3
OM 4396 (formerly PUR 4396)	Systems and Technologies	3

II. Logistics/Transportation Track

Choose 9 q.h. from the following:

TRN 4301	Elements of Transportation	(3)
TRN 4304	Advanced Logistics	(3)
TRN 4305	Traffic Management	(3)
TRN 4316	Carrier Management	(3)
TRN 4325	Management of Warehouse Operations	(3)
TRN 4342	Transportation Loss, Damage, and Other Claims	(3)
TRN 4350	International Transportation and Distribution Management	(3)

III. Purchasing and Materials Management Track

Choose 9 q.h. from the following:

OM 4321	Operations Planning and Control	(3)
OM 4357 (formerly PUR 4357)	Business Negotiations	(3)
OM 4358 (formerly PUR 4358)	Materials Requirements Planning	(3)
OM 4370 (formerly PUR 4370)	Inventory Management	(3)
OM 4390 (formerly PUR 4390)	Just-In-Time Manufacturing	(3)
OM 4395 (formerly PUR 4395)	Master Production Scheduling	(3)
OM 4396 (formerly PUR 4396)	Systems and Technologies	(3)

Total Quarter Hours (Possible transfer credit: 9 quarter hours) **24**

The courses required for the Supply Chain Management Certificate are scheduled at the Boston, Brockton, and Burlington campuses. The credits earned for this certificate may be applied toward undergraduate degree requirements.

For more information and schedules, call 617.373.2418 or 617.373.2419.
www.neu.edu/uc

Communications and the Arts

Being able to speak and/or write clearly and succinctly is what the field of Communications is all about. But it's only half the story. What will you write about? What subjects can you address with authority? We know that succeeding in the area of communications only starts with verbal and written skills. That's why we have combined communications with the Liberal Arts to provide you with a well-rounded foundation that will give you the cutting-edge in the marketplace.

Institute for Music Technology

Designed for music teachers who wish to earn professional development points. The 3 q.h. of credits translate into 30 pdp's.

Computer Applications for Music Teachers (MUS 4302) introduces teachers to uses for the computer in the music classroom. Offered in an intensive format, the course will have instruction and hands-on access to a number of applications in Northeastern's state-of-the-art music computer laboratory. Topics will include MIDI sequencing, notation, and ear training.

Multicultural Perspectives in Music Education (MUS 4305) introduces teachers to resources in multicultural music education. Emphasis will be on where to find appropriate materials for various age groups and how these materials can be used in the classroom.

"The explosion of software development, especially in this region, and the phenomenal growth of the Internet have placed a premium on competent technical communicators who know their way around computers."

Neil Duane
UC's Technical Communications
Program Consultant and
President of Boston
Documentation Design, Inc.

Public History (Graduate-Level) Program

Designed to provide individuals with the skills needed to become public historians or advance as public historians. All of the courses are taught by professionals currently affiliated with some of the foremost historical institutions in New England. In practice-oriented fieldwork, students expand their practical experience through supervised training in an historical agency, society, museum, archive, or restoration project.

To qualify for admission, applicants must meet at least one of the following criteria: 1) bachelor's degree in history or a related field, 2) bachelor's degree including at least 15 semester hours (20 quarter hours) of history courses, or 3) two years' work experience (volunteer or paid) in a public history-related field.

Students enrolled in the program earn a minimum of 18 continuing education units (CEUs) by taking post-graduate-level, 12-week courses on a pass-fail basis. The certificate program may be completed in one year.

Fall 1999	HST 5603	Historical Exhibits and Museums (3 CEUs) Monday, 7:00-9:00 p.m.
Winter 2000	HST 5625	Media and History (3 CEUs) Thursday, 4:30-6:30 p.m.
Spring 2000	HST 5610	Industrial Archeology (3 CEUs) Monday, 4:30-6:30 p.m.
Summer 2000	HST 5824	Fieldwork in History 1 (3 CEUs) TBA
	HST 5825	Fieldwork in History 2 (3 CEUs) TBA

For more information, call 617.373.2416.
www.neu.edu/uc

Technical Communications Certificate Program



Designed for students who have basic computer knowledge,* this program will help students acquire the writing skills needed for a career in technical writing.

			quarter hours
ART 4140		Graphic Communication and Production	3
TCC 4101	TCC 4102	Technical Writing 1, 2	6
TCC 4105		Editing for Science and Technology	3
TCC 4301	TCC 4302	Computer Software Technical Writing 1, 2	6
TCC 4335		Introduction to On-line Documentation	3

Choose one computer language:**

MIS 4221	COBOL Programming 1	(3)
MIS 4239	HTML/CGI Programming	(3)
MIS 4241	Programming in BASIC 1	(3)
MIS 4243	Visual Basic Programming	(3)
MIS 4276	C Programming 1	(3)
MIS 4286	JAVA Programming	(3)
MIS 4346	SQL: Introduction to Structured Query Language	(3)

Total Quarter Hours (Possible transfer credit: 9 quarter hours) **24**
The courses required for the Technical Writing Certificate are scheduled at the Boston and Burlington campuses.

*See MIS 4114 and MIS 4115 for information about basic computer knowledge.

**Prerequisites apply in most cases. See course descriptions. MIS 4210 *Business Programming Logic* is suggested for students with little programming knowledge.

NUOL

A Technical Writing Certificate is now available on-line. Please check the NUOL Web site: www.nuol.edu

About Creative Writing

"Creative writing is viscerally tied to productive living since the successful creation of fiction, poetry, or memoir depends on the author's desire to become honestly connected to the realities of his or her life. All you need to start with is a self and the willingness to explore it."

Diane Wald, Senior Lecturer,
Creative Writing

About Professional Writing

"A glance at the classifieds or a look at job descriptions will tell you that excellent writing skills are a must if you want to move anywhere in the corporate arena. Learning what, when, and how to communicate with peers, employees, and employers is key to success in any field."

Rose Dittmer, Senior Lecturer,
Associate Consultant

See also the Computer Graphics
Certificate Program on page 101.

Writing Certificate Program

Two Tracks

Created to allow students to build on the foundation of good writing skills. After completing the required courses, students choose either the Creative Writing or the Professional Writing track.



Required		quarter hours	
ENG 4349	ENG 4350	Expository and Persuasive Writing 1, 2	6
ENG 4352		Expository Writing Workshop	3
ENG 4363		Writing for Publication	3

Choose one track:

Creative Writing Track:

ENG 4356	Creative Writing	3
ENG 4359	Creative Writing Workshop	3

and choose at least three courses from the following:

ENG 4357	Creative Writing: Poetry	(3)
ENG 4358	Creative Writing: Fiction	(3)
ENG 4364	Creative Writing: Autobiography	(3)
ENG 4242	Screenwriting	(3)
ENG 4243	Screenwriting 2	(3)
ENG 4361	Creative Writing Seminar	(3)

Professional Writing Track:

Take one pair:

ENG 4380	ENG 4381	Writing for the Professions 1 and 2	(6)
or		or	
JRN 4112	JRN 4113	Writing for Media 1 and 2	(6)
or		or	
TCC 4101	TCC 4102	Technical Writing 1 and 2	(6)

Take one from the following:

JRN 4480	Copyediting	(3)
TCC 4105	Editing for Science and Technology	(3)

Take any two from the following:

ENG 4384	Advanced Managerial Communication	(3)
JRN 4350	Advertising Copywriting	(3)
JRN 4522	Magazine Writing	(3)
TCC 4320	Proposal Writing	(3)
TCC 4336	Medical Writing	(3)
TCC 4337	Writing for the Biotechnology Industry	(3)

Total Quarter Hours (Possible transfer credit: 9 quarter hours) **27**

The courses required for the Writing Certificate are scheduled primarily at the Main Boston campus; some courses are available at Burlington.

The credits earned for this certificate may be applied toward undergraduate degree requirements.

For more information, call 617.373.2416 or 617.373.2423

or 617.373.2825.

www.neu.edu/uc

Computer Technology and Information Systems

The Tools You Need for Today To Shape Your Career for Tomorrow

Changes and improvements in computer technology happen so quickly, it's almost impossible to keep up. Whether you're an adult who has finally decided it's time to learn how to point and click or an IT professional who wants to learn from the best, our state-of-the-art programs combine real-world knowledge with the latest technological training.

Internet Technologies Certificate Program



The Internet is fast becoming both a medium and a tool for business activities. Although many companies are already capitalizing on the benefits offered by the Internet, others are just recognizing the potential that exists. Through this certificate program, students will gain basic knowledge of how to utilize various aspects of the Internet and its applications as they relate to a variety of business functions.

Students will also develop the ability to understand present limitations and to anticipate future capabilities of this technology. Students will choose between two tracks. The Internet Commerce Track provides managers and administrators with the knowledge they need to make appropriate decisions about usage, vendor selection, and administration of Internet-related systems. The WebMaster Track provides students with the ability to create home pages and maintain Web sites.



	quarter hours
MIS 4236 Advanced PC Software	3
MIS 4238 Introduction to the Internet*	3
MIS 4239 HTML/CGI Programming	3
MIS 4245 Net Security and Legal Issues	3

Choose one of the following two tracks:

I. Internet Commerce Track

MKT 4305 Internet Marketing	3
MIS 4360 Computer Privacy and Security	3
MIS 4246 Web Management	3
MIS 4255 Electronic Commerce	3

II. WebMaster Track

MIS 4285 Web Publishing	3
MIS 4229 Web Publishing with Front Page	3
ART 4193 Designing Web Graphics**	3
MIS 4342 Advanced Database	3

Total Quarter Hours (Possible transfer credit: 9 quarter hours) **24**

*Students who possess a strong knowledge of Internet basics may substitute a course from the track they are not pursuing.

**3 1/2-hour studio.

The courses for the Internet Technologies Certificate are offered at the Downtown Boston, Burlington, and Dedham campuses. The credits earned for this certificate may be applied toward undergraduate degree requirements.

Internet/Web Technology

This program is endorsed by the
World Organization of
WebMasters.

WOW

For more information, call
617.373.2418 or 617.373.2419.
www.neu.edu/uc

NUOL A version of this certificate is available on-line.
See www.nuol.edu for more information.

Marketing Certificate Program

New Media Track

Designed to provide students with a solid foundation in the marketing skills currently in demand by



business, the program is excellent preparation for those individuals seeking to advance or get started in a marketing field. The New Media Track focuses on electronic marketing and other, more recently adopted, approaches to marketing. Students will learn the basics of the marketing mix, including product, price, place, and promotion.

For the Promotions track to the Marketing Certificate Program, see page 81.

Core Courses quarter hours

MKT 4301	Introduction to Marketing 1	3
MKT 4302	Introduction to Marketing 2	3
MKT 4320	Marketing Management	3

New Media Track

MIS 4238	Introduction to the Internet	3
MKT 4305	Internet Marketing	3
MIS 4255	Electronic Commerce	3
MIS 4360	Computer Privacy and Security	(3)

or	or	
MIS 4245	Net Security and Legal Issues	(3)
MKT 4308	Direct Response Marketing	3

Total Quarter Hours (Possible transfer credit: 9 quarter hours) **24**

The courses required for the New Media Track are offered at Main Boston, Burlington, and Downtown. The credits earned for this certificate may be applied to undergraduate degree requirements.



Strategic Internet Management Graduate Certificate



The phenomenal growth of the Internet has led to widespread business applications that encompass all major functions of management. Electronic commerce is rapidly gaining acceptance as not only a viable means of doing business but as the preferred means of conducting business within some industries. The National Governors' Association predicts that e-commerce activity will account for \$300 billion in sales by the year 2002.

Many businesses are already capitalizing on the benefits of the Internet, whereas others are just now becoming familiar with its potential. In fact, the full extent of the Internet's potential is not likely to be realized, or the entrepreneurial opportunities maximized, for quite some time yet. For these reasons, there is considerable need for managers to gain an understanding of how best to integrate the Internet with strategic and operational planning and decision making. The rapid rise of the Internet and its development as a tool and medium of business have created a tremendous knowledge gap for many professionals and organizations. The objective of the Strategic Internet Management Certificate is to augment the manager's knowledge of traditional business practices with a very focused curriculum that provides the business-professional with a strategic advantage and highly marketable skills.

Geared toward management practitioners, both technical and non-technical, who recognize the need to expand their understanding of how to capitalize on the Internet as a business tool and medium for conducting business, participants will learn to manage Internet projects, develop e-commerce strategy, and incorporate the Internet within a variety of activities, such as marketing, purchasing, and staffing.

	quarter hours
MIS 3150	Internet Solution 3
MIS 3155	Managing Internet Projects 3
MIS 3160	Web-based Marketing 3
MIS 3165	Internet Law 3
MIS 3170	Internet Systems and Tools 3
MIS 3175	Electronic Commerce Strategy 3

Total Quarter Hours: (Possible transfer credits: 3 q.h.) **18**
Courses for this program are scheduled at the Main Boston campus.

For a free brochure, call 617.373.2425.
www.neu.edu/uc

For more information, call
617.373.2423.
www.neu.edu/uc

Advanced Web Technology

The program is
endorsed by the
World
Organization of
WebMasters.



For more information, call
617.373.2416 or 617.373.2418.
www.neu.edu/uc

Advanced WebDesign Certificate Program



Developed to combine technical prowess with design competencies essential to Web development, this program is ideally suited to those individuals currently using basic coding and scripting skills who would like to take their Web publishing skills to an even higher level. This advanced program is designed particularly for those individuals currently in, or anticipating to be in, a professional WebMaster position.



Students interested in pursuing this certificate should complete the following prerequisite courses prior to beginning the program: MIS 4238, MIS 4285, and MIS 4342 or possess equivalent knowledge.

	quarter hours
ART 4112 Visual Foundations: Two-Dimensional Design*	3
ART 4193 Designing Web Graphics*	3
MIS 4286 JAVA Programming	3
MKT 4305 Internet Marketing	3
MIS 4288 Multimedia 1	3
MIS 4289 Multimedia 2	3
TCC 4101 Technical Writing 1	3
TCC 4110 Technical-Promotional Writing	3

Total Quarter Hours (Possible transfer credit: 9 quarter hours) **24**

*3 1/2-hour studio.

The courses required for this Program are scheduled at Boston, Burlington, and Dedham campuses.



The Advanced WebDesign Certificate Program is now available on-line. For more information, check the NUOL Web site: www.nuol.edu

WebMaster Technology Certificate—Accelerated Web Site Development Program

Learn Web site development in 18 days. The Accelerated Web site Development program is a challenging and intense integration of original State-of-the-Art courses, culminating in a Certificate of Professional Achievement in WebMaster Technology—geared at providing a solid foundation and success for entry into the fast-paced Internet marketplace.

This program consists of the nine main elements of the State-of-the-Art modules detailed below. There will be additional optional time devoted to career planning and vendor presentations. The nine modules are:

- Orientation
- Internet Technologies/Effective Use of the Internet
- Web site Modeling
- Project Plan Development and Maintenance
- Web site Design
- Developing Two-Dimensional Web sites
- Adding Interactivity Options
- Dynamic Sites/Adding 3-Dimensional Options
- Electronic Business/Marketing Options



In addition, you will produce a proposal for a Web system, an implementation plan, and a Web site. Instructors will focus exercises and elements to contribute to one of these three products, though additional exercises will be used to develop your skills.

TMG 5400 WebMaster Technology Certificate—Accelerated Web Site Development

Classes run Monday, Wednesday, and Friday, from 9:00 a.m.-5:00 p.m., over a period of 6 weeks.

For more information, call
781.320.8052
www.neu.edu/coll-ed/SCA

WebMaster Technology

The Internet makes information available to millions of people by providing access to the World Wide Web. The standard of quality and sophistication in Web pages is increasing, both on the Internet and in internal, corporate Intranet applications of Web technology. The Web is seen as an open systems standard and as an effective access technology to existing client/server applications. The goal of the WebMaster Technology Certificate is to provide systems professionals with the related skills and technological tools needed to successfully implement a Web presence that meets business needs and provides a competitive advantage.

There is a wide range of definitions of just what a WebMaster's responsibilities and skills entail. In some organizations the WebMaster is responsible for the development and maintenance of the company's Web site. Other companies require the WebMaster to integrate/program the Intranet needs and to manage the Web server, user accounts, and Web security. In order to meet these varying needs, this program offers certificates in the areas of Web Development, Web Programming, Web Management, and Web Marketing.

Certificate Requirements

Participants must complete a total of six courses, including two core courses, plus the three required courses from the selected certificate track. The sixth course may be chosen from the elective course group or from the required course list of the other three tracks.

Core Courses

- TMG 5271 Effective Use of the Internet (Another course may be substituted if participants have proven prior experience.)
TMG 5372 Internet Systems Architecture

Certificate Tracks, Required Courses

Web Development Track

- TMG 5273 Web Development with HTML
TMG 5274 Designing and Developing Web Content
TMG 5279 Image Editing for the Web

Web Management Track

- COM 5912 TCP/IP Network Implementation
COM 5444 UNIX System Administration 2
or
COM 5762 NT System Administration: Server
TMG 5317 Web Server Administration

Web Marketing Track

- TMG 5301 Internet Marketing
TMG 5302 Understanding Electronic Commerce
TMG 5311 Effectiveness of Marketing on the Web

Web Programming Track

C programming experience and data structure knowledge are assumed.

- TMG 5296 CGI Scripting with PERL: Lecture/Lab
TMG 5294 Web Client Concepts Architecture and Programming: Lecture/Lab
TMG 5283 Java Programming
or
TMG 5286 Java Programming: Lecture/Lab

Elective Courses (choose one)

- TMG 5289 Internet/Intranet Security and Firewalls
TMG 5256 Microsoft Visual InterDev: Lecture/Lab
TMG 5382 JavaScript Programming: Lecture/Lab
TMG 5284 Java Programming: Advanced Lecture/Lab
COM 5582 ATL/COM Programming
COM 5845 TCP/IP Architecture, Protocols, and Algorithms
COM 5843 LANs, WANs, and Internetworking
COM 5906 Writing Windows Applications Using Microsoft Visual Basic
TMG 5305 Internet Law
TMG 5330 Web Development with XML
EE 5461 High Speed Access to the Internet (ADSL and Cable Modems)
TMG 5306 Web Site Usability

Note: You may apply no more than two courses to another certificate.

Four Tracks

State
of the Art
Program

This program is endorsed by
the World Organization of
WebMasters.

WOW

Network and Systems Administration

Communications Systems Management

Just as today's engineers must develop new communications systems and technology, managers are responsible for the successful implementation and administration of these sophisticated new business tools. In an industry as fast moving as telecommunications, effective management can be a challenging job. The State-of-the-Art Program (SOA) offers a Certificate of Professional Achievement in Communications Systems Management designed to assist the telecommunications manager in acquiring the knowledge and skills necessary to make informed decisions regarding the procurement, use, and administration of telecommunications networks and equipment.



Required Courses

EE 5401	Fundamentals of Telecommunications for the Non-Technical
COM 5828	Fundamentals of Data Communications for the Non-Technical
EE 5461	High Speed Access to the Internet (ADSL and Cable Modems)

Elective Courses

Select three additional courses from the SOA Networking and Communications offerings.

Note: You may apply no more than two courses to another certificate.

For more information, call 781.320.8052.
www.neu.edu/cont-ed/SOA

Computer Networks Specialist Program



31

WEEKENDS

The Computer Networks Specialist Program (CNSP) is structured so that participants may complete coursework in 31 weekends. Classes are scheduled to meet for a total of 12 hours a week, from 6:00 to 10:00 p.m. on one weekday and from 9:00 a.m. to 5:00 p.m. on one weekend day. Students will go through the program as a cohort group, fostering the opportunity for teamwork and networking.

The CNSP offers 15 courses that will give participants the training to be an Internet/Intranet Networks Specialist or afford them the opportunity to seek employment in individual areas, such as UNIX Network Administration, Database Design and Management, or Web Design and Development. Admission into the program is by application only, and applicants must have completed the Computer Systems Specialist (CSSP), or have equivalent knowledge, to be considered for acceptance.

For more information about the program and an application form, contact the Business Administration Program Office, Northeastern University, University College, 270 Ryder Hall, Boston, MA 02115, 617.373.2418 or 617.373.2419.

Courses in the program are:



		quarter hours
MIS 4239	HTML/CGI Programming	3
MIS 4245	Net Security and Legal Issues	3
MIS 4246	Web Management	3
MIS 4255	Electronic Commerce	3
MIS 4283	Windows Programming	3
MIS 4285	Web Publishing	3
MIS 4286	JAVA Programming	3
MIS 4288	Multimedia 1	3
MIS 4289	Multimedia 2	3
MIS 4324	UNIX Networking	3
MIS 4346	Structured Query Language (SQL)	3
MIS 4370	Object-Oriented Intelligent Databases	3
MIS 4390	Project Management for Information Systems	3
MIS 4395	Information System Disaster Prevention and Recovery	3
MIS 4398	Network System Administration	3

Total Quarter Hours

45

The courses required for the Computer Networks Specialist Program are scheduled at the Main Boston and Burlington campuses.

Data Communications Systems Technology

C.E.U.

Data communications is the most rapidly expanding area of telecommunications. Whether a company sells products or services, its success often relies on the skill with which it manages and shares information. The State-of-the-Art Program's Certificate of Professional Achievement in Data Communications Systems Technology provides a framework for understanding and mastering the tools and techniques necessary for effective information management. The curriculum encompasses transmission, circuit and packet switching, local area networking, protocols and architectures, network design, and network planning.

State-of-the-Art Program

Required Courses

COM 5830 Data Communications
COM 5840 Data Transmission and Switching
or
COM 5843 LANs, WANs, and Internetworking
COM 5844 Planning for Network Evolution

Elective Courses

Select three other courses from the SOA Networking and Communications offerings.

Note: You may apply no more than two courses to another certificate.

Local Area Networking

C.E.U.

Whether you're a 50-person department or a 5,000-person corporation, your Local Area Network (LAN) has probably become the most important part of your computing strategy. Distributed processing, client/server, groupware software, digital computing, and integrated LAN-WAN services are putting your PC LAN in continual demand. Today's LAN manager is challenged by the need for faster, more flexible networking technology and the ability to improve the design, implementation, support, and management of this strategic corporate resource. The State-of-the-Art Program's Certificate of Professional Achievement in Local Area Networking will provide you with a framework for understanding and mastering the tools and techniques needed for effective LAN management.

State-of-the-Art Program

Required Courses

COM 5830 Data Communications
COM 5843 LANs, WANs, and Internetworking
EE 5415 Introduction to Local Area Networks
EE 5416 Intensive Local Area Networks Lab

Choose one:

COM 5848 Local Area Network Support 1
COM 5846 Local Area Network Administration 1

Elective Courses

Select one additional course from the SOA Networking and Communications offerings.

Note: You may apply no more than two courses to another certificate.

For more information, call
781.320.8052.
www.neu.edu/cont-ed/SOA

Microsoft™ Technologies

The State-of-the-Art Program's Certificate of Professional Achievement in Microsoft Technologies is designed to provide computer professionals with a complete curriculum of courses (all required courses are hands-on) that help prepare for the exams required for the Microsoft Certified Systems Engineer certification. Our vendor-independent program gives you all the value of authorized training without the big investment costs.



Certificate Requirements

Participants must complete a total of six courses, four required and two electives.

Required Courses

COM 5811	Microsoft Networking Essentials
COM 5761	NT System Administration: Workstation
COM 5762	NT System Administration: Server
COM 5763	NT Enterprise Management

Elective Courses (choose two):

COM 5845	TCP/IP Architecture, Protocols, and Algorithms
COM 5912	TCP/IP Network Implementation
COM 5767	SQL Server Administration
COM 5768	Microsoft SNA Server
COM 5769	Microsoft Systems Management Server
TMG 5317	Web Server Administration

Note: You may apply no more than two courses to another certificate.

Microsoft is a trademark of Microsoft Corporation. Although selected courses cover software products of the Microsoft Corporation, Northeastern University is not a Microsoft Authorized Technical Education Center.

Telecommunications Systems Technology

Few technology-based fields currently offer the career potential of the telecommunications industry. Rapid changes in technology and the burgeoning demands of the market have put new demands on engineers and other technical professionals to provide faster, more sophisticated, and more economical communications systems and products. The State-of-the-Art Certificate of Professional Achievement in Telecommunications Systems Technology is designed to assist these professionals in developing and refining the skills required to design and implement telecommunications equipment, systems, and networks.



Required Courses

EE 5405	Principles of Telecommunications
EE 5410	Introduction to Signaling and Switching
EE 5412	Transmission Systems

Elective Courses

Select three additional courses from the SOA Networking and Communications offerings.

Note: You may apply no more than two courses to another certificate.

For more information, call 781.320.8052.
www.neu.edu/cont-ed/SOA

Programming, Systems Analysis and Software Engineering

Client/Server Technology



Client/server technology is a powerful and popular computing paradigm. It addresses the need for information systems to possess greater flexibility and scalability, as well as the need for increasing levels of computing power. Client/server technology has accelerated the movement away from large, monolithic systems to a distributed and networked system providing fast information access to a larger number of simultaneous users.

The State-of-the-Art Program's Certificate of Professional Achievement in Client/Server Technology is designed to familiarize participants with all aspects of client/server systems. A broad spectrum of this newly emerging technology is covered, while still leaving room for participants to customize the certificate to meet their individual professional needs.

Certificate Requirements

Participants must complete a total of six courses including one course from each of the following groups: core, client, server, and database. The other two courses may be chosen from any of those groups or from the optional group.

Core Courses

Choose at least one:

- COM 5863 Introduction to Client/Server Computing
- COM 5873 Client/Server Software Testing
- COM 5917 Client/Server Programming: Lecture/Lab
- TMG 5272 Internet Systems Architecture

Client Courses

Choose at least one:

- COM 5874 Introduction to PowerBuilder: Lecture/Lab
- COM 5906 Writing Windows Application Using Microsoft Visual Basic
- COM 5908 Programming in Visual Basic: Lecture/Lab
- COM 5914 X/MOTIF Programming
- COM 5929 Advanced Visual Basic Programming: Lecture/Lab
- TMG 5294 Web Client Concepts, Architecture and Programming: Lecture/Lab

Server Courses

Choose at least one:

- COM 5462 UNIX Distributed Systems 1
- COM 5463 UNIX Distributed Systems 2
- COM 5464 UNIX Distributed Systems 3
- COM 5762 NT System Administration: Server

Database Courses

Choose at least one:

- COM 5537 Relational Technology 1
- COM 5538 Relational Technology 2
- COM 5539 Relational Technology 3
- COM 5555 Structured Query Language (SQL): Lecture/Lab

Four one-day database courses

Optional Courses

- COM 5843 LANs, WANs, and Internetworking
- COM 5845 TCP/IP Architecture, Protocols, and Algorithms
- COM 5912 TCP/IP Network Implementation
- COM 5761 NT System Administration: Workstation
- TMG 5283 Java Programming
- or*
- TMG 5286 Java Programming: Lecture/Lab
- TMG 5284 Java Programming: Advanced Lecture/Lab
- TMG 5382 JavaScript Programming: Lecture/Lab
- COM 5557 Advanced SQL
- COM 5763 NT Enterprise Management

Note: You may apply no more than two courses to another certificate.

For more information, call 781.320.8052.
www.neu.edu/cont-ed/SOA

Computer Programming Certificate Program



Designed to enable students to update current skills or to obtain an entry-level position, this program provides a strong computer foundation as well as the necessary flexibility for students to meet their own specific goals in Software Development, Systems Analysis, or Health Information Technology. Individuals who currently possess computer skills should consult with an advisor to determine the appropriate starting point.

For a third track, in Health Information Technology, see page 102.

Required		quarter hours
MIS 4114	Introduction to PC Software	3
MIS 4236	Advanced PC Software	3
MIS 4210	Business Programming Logic	3
Software Development Track		21
MIS 4115	Introduction to Computers and Information Systems	3
<i>Choose six of the following:</i>		
MIS 4243	Visual Basic Programming	(3)
MIS 4244	Advanced Visual Basic	(3)
MIS 4276	C Programming 1	(3)
MIS 4277	C Programming 2	(3)
MIS 4278	C++ for C Programmers	(3)
MIS 4282	Operating Systems Overview	(3)
MIS 4283	Introduction to Windows Programming	(3)
MIS 4285	Web Publishing	(3)
MIS 4286	JAVA Programming	(3)
MIS 4321	UNIX 1	(3)
MIS 4322	UNIX 2	(3)
MIS 4342	Advanced Database	(3)
MIS 4346	Structured Query Language	(3)
MIS 4360	Computer Privacy and Security	(3)
Systems Analysis Track		21
MIS 4301 MIS 4302	Structured Systems Analysis and Design 1, 2	6
MIS 4307	Communications and Networking	3
MIS 4115	Introduction to Computers and Information Systems	3
<i>Choose three of the following:</i>		
MIS 4243	Visual Basic Programming	(3)
MIS 4244	Advanced Visual Basic	(3)
MIS 4276	C Programming 1	(3)
MIS 4277	C Programming 2	(3)
MIS 4278	C++ for C Programmers	(3)
MIS 4282	Operating Systems Overview	(3)
MIS 4283	Introduction to Windows Programming	(3)
MIS 4285	Web Publishing	(3)
MIS 4286	JAVA Programming	(3)
MIS 4321	UNIX 1	(3)
MIS 4322	UNIX 2	(3)
MIS 4346	Structured Query Language	(3)
MIS 4360	Computer Privacy and Security	(3)
MIS 4342	Advanced Database	(3)

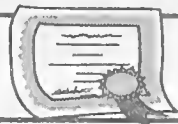
Total Quarter Hours (Possible transfer credit: 9 quarter hours)

27

This certificate differs from the Computer Systems Specialist Program (described on p. 97) in that the courses for this certificate are regularly offered at the Boston, Burlington, Dedham, and Downtown campuses and may be completed over a longer period of time than in the Specialist Program. The Health Information Technology Track is available in Boston only. For more information about both programs, call 617.373.2418 or 617.373.2419.

For more information, call 617.373.2418 or 617.373.2419.
www.neu.edu/uc

Computer Systems Specialist Program



The Program

This thirty-one week intensive program is ideally suited to the career changer seeking to become a computer system specialists. The program addresses the career goals of individuals possessing little or no academic or work-related background in computer programming. Students who successfully complete the program receive a Computer Systems Specialist Certificate.

31 WEEKENDS

Admission

Computer Systems Specialist Program candidates will be evaluated for acceptance into the program on the basis of their transcripts from high school or most recently attended college, their motivation, and their expressed goals. Enrollment is limited. This program is offered only if a sufficient number of qualified candidates apply.

Time and Place

The program is scheduled to begin in the Fall and Spring quarters at the following locations: Burlington—Friday, 6:00-10:00 p.m. and Saturday, 9:00 a.m.-5:30 p.m. Downtown Boston campus—Thursday, 6:00-10:00 p.m. and Saturday, 9:00 a.m.-5:30 p.m.

Main Boston campus—Friday, 6:00-10:00 p.m. and Saturday, 9:00 a.m.-5:30 p.m.

New Location-Hingham

The CSSP will begin in the Winter quarter at our new Hingham location: Friday, 6:00-10:00 p.m. and Saturday, 9:00 a.m.-5:30 p.m.

Academic Credit and Certification

Upon satisfactory completion of the program, students will have accumulated 45 quarter hours of academic credit and will receive the program certificate. The credits represent 26 percent of the credits necessary for a bachelor's degree.

Placement Assistance

Although job placement is not guaranteed, most students who successfully complete the program find suitable employment. Placement services include individual counseling; job-search seminars on career opportunities, self-assessment, resume preparation, and interviewing skills; and resume referrals to employers.

For More Information

For more information about the program and an application form, contact the Business Administration Program Office, Northeastern University, University College, 360 Huntington Avenue, Boston, Massachusetts 02115, 617.373.2418 or 617.373.2419.

Courses in the program are:

		quarter hours
MIS 4116	Introduction to PC Software and Information Systems Intensive	6
MIS 4210	Business Programming Logic	3
MIS 4236	Advanced PC Software	3
MIS 4243	Visual Basic Programming	3
MIS 4244	Advanced Visual Basic	3
MIS 4278	C++ for C Programmers	3
MIS 4279	C Programming 1, 2 Intensive	6
MIS 4305	Structured Systems Analysis and Design Intensive	6
MIS 4307	Communications and Networking	3
MIS 4321	UNIX 1	3
MIS 4322	UNIX 2	3
MIS 4345	Database Management Systems*	3
Total Quarter Hours		45

*For course description, see MIS 4445.

The Computer Systems Specialist Program is offered at the Main Boston, Downtown, and Burlington campuses.



Object-Oriented Programming with C++



The object market is rapidly changing from a promising possibility to a full blown industry.



According to a survey conducted by International Data Corporation (IDC), almost all large U.S. corporations are now programming with objects or plan to do so soon. The object industry presents a wide open opportunity for the best and brightest developers the high-tech industry can deliver. If you'd like to reap the rewards of this new field, the State-of-the-Art Certificate of Professional Achievement in Object-Oriented Programming with C++ can help. The certificate covers a broad spectrum of object technology, including analysis and design, methodology, the C++ language, databases, and project management techniques.

Required Courses

COM 5626	Object-Oriented Programming
COM 5625	C++ Programming
COM 5627	Object-Oriented Design
COM 5628	Advanced C++ Programming

Elective Courses

Select two from the following:

COM 5621	Data Structures in C++
COM 5430	Introduction to Software Engineering
COM 5637	C++ Standard Template Libraries (STL) Programming
TMG 5283	Java Programming
or	or
TMG 5286	Java Programming: Lecture/Lab

Note: You may apply no more than two courses to another certificate.

For more information, call
781.320.8052.
www.neu.edu/cont-ed/SOA

Software Engineering Using C



Completions for success in the global marketplace has driven today's software engineering community to greater levels of quality and productivity. The State-of-the-Art Program's Certificate of Professional Achievement in Software Engineering Using C focuses on the process of software engineering: the methods, tools, and techniques required to produce high quality software. The C programming language (as well as its successor, C++) has emerged as the language of choice for professional programmers, and a great deal of emphasis is placed on it.

The curriculum is designed for practicing software engineers who wish to develop and refine their skills in the process of software engineering, as well as managers and other professionals who wish to increase their knowledge about successful practices used in the software engineering field. You must complete six courses to earn the certificate.

Required Courses

COM 5430	Introduction to Software Engineering
COM 5600	C Programming
COM 5614	C Programming: Advanced Topics

Choose at least one from the following:

COM 5560	Software Verification and Validation
COM 5434	Systems Analysis and Design
TMG 5510	Software Project Management

Elective Courses

COM 5637	C++ Standard Template Libraries (STL) Programming
COM 5620	Data Structures Using C
COM 5625	C++ Programming
TMG 5283	Java Programming
or	or
TMG 5286	Java Programming: Lecture/Lab
COM 5621	Data Structures in C++

Note: You may apply no more than two courses to another certificate.

UNIX for Business Certificate Program



Designed to enable students to develop a working knowledge of UNIX principles and proficiency in C programming, this program places students on the cutting-edge of technology.

		quarter hours
MIS 4282	Operating Systems Overview	3
MIS 4321	MIS 4322 UNIX 1, 2	6
MIS 4276	MIS 4277 C Programming 1, 2	6
MIS 4278	C++ for C Programmers	3
MIS 4301	MIS 4302 Structured Systems Analysis and Design 1, 2	6
MIS 4307	Communications and Networking	3

Total Quarter Hours (Possible transfer credit: 9 quarter hours) **27**

The courses required for the UNIX for Business Certificate are scheduled at the Boston and Burlington campuses. The credits earned for this certificate may be applied to undergraduate degree requirements.

For more information, call 617.373.2418 or 617.373.2419.
www.neu.edu/uc

UNIX Programming



UNIX and UNIX lookalikes are rapidly gaining acceptance as the operating system of choice on both midrange and microcomputers in business and industry. The ability to program and maintain this environment is becoming an important part of any resumé. The State-of-the-Art Program offers a Certificate of Professional Achievement in UNIX, designed to introduce software and hardware engineers to the facilities and programming methods in use on UNIX-based systems.

Required Courses:

COM 5440	UNIX Users' Course
or	or
COM 5441	UNIX Users' Course: Lecture/Lab
COM 5883	UNIX Shell Programming
or	or
COM 5887	UNIX Shell Programming: Lecture/Lab

Choose Four:

COM 5443	UNIX System Administration 1
COM 5444	UNIX System Administration 2
COM 5460	UNIX for Systems Programmers
COM 5462	UNIX: Distributed Systems 1
COM 5463	UNIX: Distributed Systems 2
COM 5464	UNIX: Distributed Systems 3
COM 5465	UNIX Internals 1: Files and Processes
COM 5466	UNIX Internals 2: Advanced Topics
COM 5600	C Programming
COM 5614	C Programming: Advanced Topics
COM 5620	Data Structures Using C
COM 5914	X/MOTIF Programming
COM 5641	PERL Programming
TMG 5296	CGI Scripting with PERL: Lecture/Lab

Note: You may apply no more than two courses to another certificate.

For more information, call 781.320.8052. www.neu.edu/cont-ed/SOA



Windows Programming



Today's competitive job market requires that individuals keep their skills current. Companies are hiring professionals to assist in managing their information, analyzing their products, providing software quality assurance, and assisting in supporting end-users. The continued growth within the software industry has created a strong demand for Windows programmers with a solid understanding of good programming and programs, client/server architecture, and proper design and implementation of Windows applications. The Certificate of Professional Achievement in Windows Programming provides participants with the skills needed to compete in today's corporate environment and a solid foundation of Windows Programming.

Certificate Requirements

Participants must complete a total of six courses—four required courses and two elective courses.

Certificate Prerequisites

COM 5600 C Programming or equivalent experience

Required Courses

COM 5588 Windows Programming

COM 5594 Win32 Programming

Choose one:

COM 5626 Object-Oriented Programming

COM 5625 C++ Programming

(If both are completed, then one may be used as an elective.)

Choose one:

COM 5874 Introduction to PowerBuilder: Lecture/Lab

COM 5906 Writing Windows Applications Using
Microsoft Visual Basic

COM 5908 Programming in Visual Basic: Lecture/Lab

(If both COM 5874 *Introduction to PowerBuilder Lecture/Lab* and a Visual Basic course are completed, one may be used as an elective.)

Elective Courses

Choose two:

COM 5627 Object-Oriented Design

COM 5593 Windows Programming Using MFC

COM 5929 Advanced Visual Basic Programming:
Lecture/Lab

COM 5917 Client/Server Programming: Lecture/Lab

COM 5584 Writing OLE and ActiveX Controls

TMG 5294 Web Client Concepts, Architecture, and
Programming: Lecture/Lab

TMG 5283 Java Programming

or

TMG 5286 Java Programming: Lecture/Lab

TMG 5284 Java Programming: Advanced Lecture/Lab

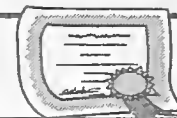
TMG 5382 JavaScript Programming: Lecture/Lab

Note: You may apply no more than two courses to another certificate.

For more information, call 781.320.8052.
www.neu.edu/cont-ed/SOA

Computer Applications

Computer Applications Certificate Program



Designed to provide managers, administrators, and office support staff with a solid base of business-related computer skills and tools. These skills are essential in today's work force and are key to maximizing productivity. (Formerly called Microcomputer Software Certificate.)

	quarter hours
MIS 4114 Introduction to PC Software	3
MIS 4115 Introduction to Computers and Information Systems	3
MIS 4236 Advanced PC Software	3
MIS 4238 Introduction to the Internet	3
MIS 4390 Project Management for Information Systems	3
MIS 4282 Operating Systems Overview	(3)
<i>or</i>	<i>or</i>
MIS 4273 PC DOS	(3)
MIS 4342 Advanced Database	3
MIS 4347 Desktop Publishing for the PC	3

Total Quarter Hours (Possible transfer credit: 9 quarter hours) **24**

The courses required for the Computer Applications Certificate are scheduled at the Boston, Burlington, Dedham, and Doughton campuses. The credits earned for this certificate may be applied to undergraduate degree requirements.

For more information, call 617.373.2418 or 617.373.2419.
www.neu.edu/uc

Microelectronics and Computer Technology



Advances in semiconductor and integrated circuit devices have revolutionized the electronics industry. New high-resolution lithographic techniques have made possible the fabrication of chips containing millions of transistors with dimensions smaller than the wavelength of visible light. This very large-scale integration (VLSI) revolution presents numerous challenges for process engineers, circuit designers, computer scientists, and managers. The State-of-the-Art (SOA) Certificate of Professional Achievement in Microelectronics and Computer Technology is designed to help meet these challenges by introducing technical professionals to advances in areas including integrated circuit fabrication, VLSI design, microelectronics interconnection, and packaging.



Required Courses

EE 5680	Introduction to Solid State Principles
EE 5685	Principles of Semiconductor Devices
EE 5705	Integrated Circuit Fabrication

Elective Courses

Select three additional courses from SOA Microelectronics/Computer Technology offerings.

Note: You may apply no more than two courses to another certificate.

For more information, call
781.320.8052
www.neu.edu/cont-ed/SOA

Cancer Data Management Certificate (Major Code 878)



The Certificate Program in Cancer Data Management will prepare students to serve as cancer registrars and/or cancer data managers for healthcare facilities, data organizations, and free-standing cancer registries. Students will acquire the technical knowledge and skills necessary to maintain a cancer/disease data collection system that will be consistent with medical, administrative, ethical, legal, and accreditation requirements of the healthcare delivery system.

For more detailed information, see page 107.

Computer Crime and Security Certificate Program



Introduces students to information security principles, recognizing and preventing computer crime, and investigating and reconciling computer crime incidents. Students will learn how information technology security programs are developed and how to coordinate these programs with auditors, legal departments, law enforcement officials, and other agencies. Courses cover hardware security, information security, contingency planning, technology crime prevention and detection, and legal issues pertaining to this emerging industry.

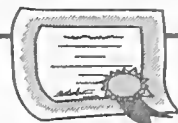
		quarter hours
MIS 4114	Introduction to PC Software*	3
CJ 4114	CJ 4115 Introduction to Law 1 and 2	6
CJ 4201	Criminal Investigation 1	3
CJ 4403	Introduction to Security	3
CJ 4412	Computer Crime and Security	3
CJ 4420	Investigating High Technology Crime	3
MIS 4360	Computer Privacy and Security	3
Total Quarter Hours (Possible transfer credit: 9 quarter hours)		24

*Should be taken at the beginning of the student's course of study.

The courses required for the Computer Crime and Security Certificate are scheduled at the Main Boston campus. The credits earned for this certificate may be applied to undergraduate degree requirements.

Industry-Focused Technology

Computer Graphics Certificate Program



Designed to offer students a comprehensive background in graphic design through the core curriculum, the program allows students to develop proficiency in design and in computer design applications. Students build portfolios through all classes in preparation for the capstone course: ART 4400 *Portfolio Development Workshop*.

	quarter hours
ART 4112 Visual Foundations: Two-Dimensional Design*	3
ART 4139 Visual Foundations: Color*	3
ART 4140 Graphic Communication and Production	3
ART 4141 Graphic Design 1*	3
ART 4151 Typography*	3
ART 4181 Introduction to Computer Graphics*	3
ART 4183 Electronic Publishing Systems*	3
ART 4185 Creative Imaging: Custom Computer Design*	3
ART 4187 Advanced Computer Illustration*	3
ART 4189 Advanced Electronic Publishing Design*	3
ART 4400 Portfolio Development Workshop*	3

Total Quarter Hours (Possible

APL or transfer credit:

9 quarter hours) **33**

*3 1/2-hour studio.

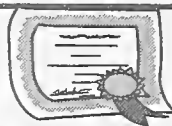
The courses required for the Computer Graphics Certificate are scheduled evenings at the Main Boston campus and during the day at the Burlington and Downtown campuses.

The credits earned for this certificate may be applied to undergraduate degree requirements.

For more information, call 617.373.2423 or TTY 617.373.2825.
www.neu.edu/uc

Computer Programming Certificate Program

• Health Information Technology Track



Designed to enable students to update current skills or to obtain an entry-level position, this program provides a strong computer foundation, as well as the necessary flexibility for students to meet their own specific goals in Health Information Technology. Individuals who currently possess computer skills should consult with an advisor to determine the appropriate starting point. For other tracks, see p. 96.

Required		quarter hours
MIS 4114	Introduction to PC Software	3
MIS 4236	Advanced PC Software	3
MIS 4210	Business Programming Logic	3

Health Information Technology Track 27

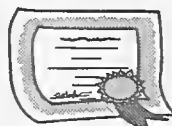
HMG 4301	Healthcare Delivery Systems	3
HMG 4580	Information Processing in Healthcare	3
HIA 4530	Healthcare Systems/Computerized Patient Record Systems	3
MIS 4221 MIS 4222	COBOL Programming 1, 2	6
MIS 4301	Structured Systems	
MIS 4302	Analysis and Design 1, 2	6
MIS 4307	Communications and Networking	3
MIS 4360	Computer Privacy and Security	3

Total Quarter Hours (Possible transfer credit: 9 quarter hours) 27

The Health Information Technology Track is available in Boston only. The credits earned for this certificate may be applied to undergraduate degree requirements.

For more information, call 617.373.2525 or TTY 617.373.2825.
www.neu.edu/uc

Health Information Administration Post-Baccalaureate Certificate (Major Code 868)



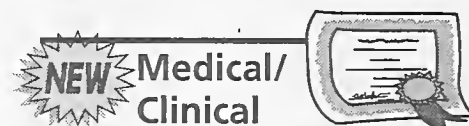
For more information, see page 109 or call 617.373.2525.
www.neu.edu/uc

Institute for Music Technology **NEW**

Designed for music teachers who wish to earn professional development points. The 3 q.h. of credits translate into 30 pdp's.

Courses include *MUS 4302 Computer Applications for Music Teachers* and *MUS 4305 Multicultural Perspectives in Music Education*.

See page 86 for more detailed information.



NEW Medical/Clinical Coding Certificate Program (Major Code 876)

The Certificate Program in Medical/Clinical Coding and Classification Systems will prepare students to be employed as medical coders for inpatient and ambulatory healthcare facilities, insurance companies, medical billing companies, managed care organizations, and physician offices.

For more detailed information, see p. 110.

Technical Communications Certificate Program

Designed for students who have basic computer knowledge, this program will help students acquire the writing skills needed for a career in technical writing.

See page 86 for more detailed information.



English Language Center

The English Language Center at Northeastern University offers several programs that may be of interest to non-native speakers of English.

Five-Week Intensive Summer Program

The English language Center offers specially designed intensive English courses for students who wish to live and study in Boston. ELC students are given proficiency tests and interviews at the beginning and end of each quarter to determine levels and progress. All courses are non-credit. The program features small classes that stress structure, listening, speaking, reading, and writing. Classes meet for twenty hours per week Monday through Thursday during the day. There are five different proficiency levels; beginner, low intermediate, intermediate, high intermediate, and advanced. The program also provides a state-of-the-art Media Center with modern listening and video labs, conversation, partners for out-of-classroom practice, and a monitored reading and writing lab for those interested in additional tutoring on a one-to-one basis.

Pre-MBA Program

Taught by Northeastern University's MBA professors, this unique program focuses on three core areas critical to entrance and success in an MBA program: Business English Skills, Western Business Cultures and Practices, and Business Core Foundations.

Do you need to improve your English for business reasons? Consider the benefits of taking Business Reading for ESL Students

This non-credit evening course is designed for international students at the intermediate/advanced level who want to improve their reading and vocabulary skills through a business context. Students will read and discuss international business cases that cover topics such as negotiations, contracts, time management, and marketing. In addition students will do short presentations based on outside business reading. Students will be placed after an initial interview.

Register through the University College *Schedule*. Call 617.373.2400 for a copy or log onto www.neu.edu/uc

ESL 5011 Business Reading for
ESL Students

Business Language Skills Program

This nine-week program is designed to increase the effectiveness of language skills and speaking strategies useful in a business and university setting. It is intended for

- students entering American MBA programs who want to improve their presentation skills
- those considering applying to a business or economics degree program in a U.S. university who want to get the feeling of an American academic environment
- those already working who want to increase their effectiveness in an American business environment.

Classes meet four days a week for a total of twelve hours per week of in-class instruction, using business cases, videotaping, and public speaking techniques to help students develop the speaking skills and confidence to become more effective participants in group discussion. The Program entails a very heavy workload, including a heavy amount of reading outside of class. It thus constitutes a full-time commitment for most students.

For more information, call 617.373.2455.
www.neu.edu/elc

Environmental, Health and Safety

As the technological and regulatory requirements continue to rapidly change, today's environmental, health and safety professional must stay current to meet the increasing demands of the profession. For more than eight years, the Environmental, Health and Safety Program has provided state-of-the-art education on the current issues of EHS management taught by outstanding faculty from industry, consulting, and regulatory agencies.

Students also have the option to earn college credit in this field and a baccalaureate degree through the Health Science Bachelor of Science degree, Option 2: Environmental, Health and Safety Specialization. See next page for more information.

**Programs Designed
for the EHS
Professional to
Enhance
Management,
Regulatory, and
Technical Skills**

Environmental Compliance Management



As business and government are faced with the need to get more done with fewer resources, environmental managers are faced with an even greater demand to be proficient in all areas of environmental management. Learn the skills needed to make informed decisions in an ever increasing array of environmental compliance issues. The curriculum is based on federal and state regulations, pollution control technology, and environmental management. Compliance professionals are now required to play an active role in corporate management, and as such, many of the courses stress the importance of their role as manager. Seven courses complete the Certificate as listed below. In some cases, a participant may substitute courses from other Environmental Health and Safety Program certificates. A bachelor's degree or equivalent work experience is recommended.

Required Courses

ENV 5210	Environmental Compliance Management Overview*
ENV 5230	Hazardous Waste Law*
ENG 5215	Pollution Prevention**

Choose any four of the following courses:

ENV 5247	Understanding ISO 14000: Environmental Management Standards
ENV 5250	Hazardous Waste Management Under RCRA
ENV 5624	Occupational Health and Safety Overview
ENV 5670	Environmental, Health and Safety Auditing
ENV 5410	Introduction to Clean Air Issues
ENV 5411	Introduction to Clean Water Issues

*The D.E.P. Toxic Use Reduction Program has approved this course for the TUR Planner Recertification (4 hours).

**The D.E.P. Toxic Use Reduction Program has approved this course for the TUR Planner Recertification (22 hours).

Note: You may apply no more than two courses to another certificate.

For more information, call 781.320.8026.
www.neu.edu/cont-ed/env

Environmental Site Investigation and Remediation



While business and industry strive to reduce the level of hazardous materials entering the environment, there still remain numerous sites that have been contaminated through the disposal of hazardous materials and hazardous wastes. Disposal techniques that were once thought of as appropriate are now understood to be the underlying cause of many of the existing contaminated sites. Environmental liability laws now place the burden of remediation on the current landowners, who must be able to quantify the environmental risks associated with their contaminated property. Learn the essentials of site investigation sciences, regulatory policy requirements, and remediation technology and management. Seven courses complete the certificate, as outlined below. Candidates may select courses from other areas of the Environmental Health and Safety course offerings with prior approval. A bachelor's degree or equivalent work experience is recommended.

Required Courses

ENV 5210	Environmental Compliance Management Overview*
ENV 5216	Environmental Site Evaluations**
ENV 5234	Applied Geological Principles**
ENV 5637	Understanding the Massachusetts Contingency Plan (MCP)†

Choose any three of the following courses:

ENV 5230	Hazardous Waste Law*
ENV 5232	Chemistry for Hazardous Waste Site Managers**
ENV 5266	Subsurface Exploration Techniques**
ENV 5426	Underground Storage Tank Management**
ENV 5240	Site Remediation Principles and Technologies**
ENV 5468	Applied Risk Characterization Under the Massachusetts Contingency Plan (MCP)**

*The D.E.P. Toxic Use Reduction Program has approved this course for the TUR Planner Recertification (4 hours).

**This course has received LSP Continuing Education approval as a technical course (12 hours credit).

†This course has received LSP Continuing Education approval as a core, regulatory course (12 hours credit).

Note: You may apply no more than two courses to another certificate.

Environmental Health and Safety Specialization within Health Science Bachelor of Science in Health Science Degree Program



Option 2: Environmental Health and Safety Specialization

Required		quarter hours
HSC 4315	Environmental Problems and Health	3
HSC 4350	Introduction to Environmental Health and Safety	3
HSC 4352	Environmental Law	3
HSC 4354	Loss Prevention and Fire Safety	3
HSC 4401	Occupational Safety	3
HSC 4402	Health Hazards of Workplace Environments	3
HSC 4403	Environmental Compliance	3
HSC 4404	Hazardous Waste Management	3
HSC 4501	Industrial Toxicology	3

General electives as needed to complete total credits, including the following recommended Option 2 electives:

HSC 4502	Industrial Hygiene Measurements	3
HSC 4503	Engineering Control of Chemical Hazards in the Workplace	3
HSC 4504	Recognition and Control of Non-Chemical Hazards in the Workplace	3

For more information, see page 40.

For more information, call 781.320.8026.
www.neu.edu/cont-ed/env

Occupational Health and Safety



For health and safety officers, a concise understanding of OSHA regulations and the skills necessary to put sound occupational health and safety programs into effect are paramount to risk management. The Certificate of Professional Achievement in Occupational Health and Safety is designed to provide these and other professionals with the necessary tools to influence the many factors that determine a health and safety program's success. Seven courses complete the certificate, as outlined below. A bachelor's degree or equivalent work experience is recommended.

Required Courses:

- ENV 5624 Occupational Health and Safety Overview*
- ENV 5660 Fundamentals of Industrial Hygiene
- ENV 5649 Industrial Safety

Choose four of the following courses:

- ENV 5462 Hazard Communication: Writing and Implementing the Plan
- ENV 5467 Confined Space Entry
- ENV 5669 Ergonomics
- ENV 5640 Fundamentals of Construction Safety
- ENV 5445 Chemical and Biological Safety in the Laboratory
- ENV 5464 Hazard Recognition and Loss Control Methods
- ENV 5670 Environmental, Health and Safety Auditing
- ENV 5210 Environmental Compliance Management Overview*

*The D.E.P. Toxic Use Reduction Program has approved this course for the TUR Planner Recertification (4 hours).

Note: You may apply no more than two courses to another certificate.

Licensing Preparation and Review Courses

- Licensed Site Professionals (LSP) Program
- Certified Hazardous Materials Manager (CHMM)

Prepare for the Principles and Practice (PE) License Examination in environmental engineering or for the exam in civil engineering with an environmental focus. A review of environmental engineering fundamentals is provided in addition to the advanced topics common to all environmental engineers. Sample problems are reviewed in class with related handouts. Please call 781.320.8026 for more information on the Professional Engineering Preparatory Program.

- ENV 5350 Principles and Practice (PE) License Exam Prep in Environmental Engineering

Prepare for the Certified Hazardous Materials Manager examination. A review of the fundamentals of hazardous materials management topics followed by a series of interactive study groups is provided. To receive an application to take the CHMM exam, call the Institute of Hazardous Material Management at 301.984.8969.

- ENV 5652 Certified Hazardous Materials Manager (CHMM) Review Course

For more information, call 781.320.8026.
www.nem.edu/cont-ed/env

Health Professions

In some fields, changing technology and the evolving workplace have made jobs obsolete and brought careers to dead ends. In health professions, however, it's exactly the opposite: changes in the healthcare industry, coupled with technological advances within the workplace, have redefined jobs and paved the way for brand new careers with unlimited potential.

Cancer Data Management Certificate (Major Code 878)



Endorsed by the Committee on Formal Education of the National Cancer Registrar's Association (NCRA) and the National Board for Certification for Registrars (NBCR)

Students who complete the Cancer Data Management Certificate Program will be eligible to sit for the Certified Tumor Registry examination. To be eligible for the national examination, students must complete formal coursework required as part of the certificate program and have 160 hours work experience under the direction of a Certified Tumor Registrar.

The Certificate Program in Cancer Data Management will prepare students to serve as cancer registrars and/or cancer data managers for healthcare facilities, data organizations, and free-standing cancer registries. Students will acquire the technical knowledge and skills necessary to maintain a cancer/disease data collection system that will be consistent with medical, administrative, ethical, legal, and accreditation requirements of the healthcare delivery system.

Cancer registrars/data managers maintain, monitor, compile, and report cancer and disease data for research, quality management, facility planning, and marketing. They are responsible for abstracting and coding clinical data, using appropriate classification systems; obtaining long-term data; and analyzing health records according to standards set by various local, state, and federal organizations and agencies. The registrar/data manager also participates in medical staff and institutional activities, including quality management and research data collection and organization.

Core Courses		quarter hours
MIS 4236	Advanced PC Software	3
BIO 4161/BIO 4165	Human Anatomy and Physiology 1/Lab for Human Anatomy and Physiology 1	3/1
BIO 4162/BIO 4166	Human Anatomy and Physiology 2/Lab for Human Anatomy and Physiology 2	3/1
BIO 4163/BIO 4167	Human Anatomy and Physiology 3/Lab for Human Anatomy and Physiology 3	3/1
HSC 4301 HSC 4302	Pathophysiology 1, 2	6
HIA 4200	Medical Terminology*	3
Major Concentration Courses		
HIA 4900	Cancer Registry Organization and Operation	3
HIA 4910 HIA 4920	Cancer Registry Abstracting and Coding 1, 2	6
HIA 4930	Cancer Registry Data Utilization and Statistics	3
Total Quarter Hours		36

*A challenge exam is available for this course. Call 617.373.2525 for details.

The courses in this certificate program may be used for transfer credit into the Health Information Administration Post-Baccalaureate Certificate Program or the bachelor's degree in Health Information Administration. See pp. 109 and 37.

For more information,
call 617.373.2525.
www.ncu.edu/uc

Dental Hygiene Post-Baccalaureate Certificate Preparation Program

Forsyth School for Dental Hygienists offers a post-baccalaureate accelerated dental hygiene curriculum. Prerequisites for the program are a bachelor's or master's degree from an accredited college or university, a 3.0 q.p.a., and a number of prerequisite courses. It is possible to take the prerequisites at University College in preparation for application to the Forsyth program. Each course must be completed with a grade of B (3.0) or better.

		quarter hours
BIO 4161/BIO 4165	Human Anatomy and Physiology 1/ Lab for Human Anatomy and Physiology 1	3/1
BIO 4162/BIO 4166	Human Anatomy and Physiology 2/ Lab for Human Anatomy and Physiology 2	3/1
BIO 4163/BIO 4167	Human Anatomy and Physiology 3/ Lab for Human Anatomy and Physiology 3	3/1
BIO 4207/BIO 4210	Microbiology 1/Lab for Microbiology 1	2/1
BIO 4208/BIO 4211	Microbiology 2/Lab for Microbiology 2	2/1
CHM 4133/CHM 4140	Chemical Principles 1/Lab for Chemical Principles 1	3/1
CHM 4134/CHM 4141	Chemical Principles 2/Lab for Chemical Principles 2	3/1
CHM 4135/CHM 4142	Chemical Principles 3/Lab for Chemical Principles 3	3/1
ENG 4100	ENG 4101 Critical Writing 1, 2	8
ENG 4102	Critical Writing Workshop	2
PSY 4110	Introduction to Psychology: Fundamental Issues	3
PSY 4111	Introduction to Psychology: Developmental Aspects	3
SOC 4100	Roles, Culture and the Individual	3
SOC 4101	Inequality and Institutions	3
HSC 4210	Basic Nutrition	3
CMN 4101	Fundamentals of Human Communication	3
Total Quarter Hours		58

For more information, contact the Admissions Office,
Forsyth School for Dental Hygienists, 140 The Fenway, Boston, MA 02115.

For more information, call 617.262.5200 x212.

Emergency Medical Technician/Basic



This course is designed for those who wish to become certified EMTs as well as for those who just want to be prepared for emergencies. *This course meets the U.S.D.O.T. Revised EMT/Basic National Standard Curriculum. Under the new EMT course requirements, all students must pass CPR by the third class in order to continue in the program.* Students who successfully complete the course receive 9 quarter hours of credit, a Northeastern University certificate, and a CPR Healthcare Provider card from the American Heart Association. They also become eligible to take the state EMT licensing examination.

The EMT/Basic course is offered at the Boston, Burlington, and Dedham campuses. Students spend 9 hours in class weekly for 12 weeks and attend 4 all-day Saturday exercises. There is a special tuition rate.

This course has been approved by the National Athletic Trainers Association for 1.5 CEUs.

	quarter hours
EMS 4107 EMT/Basic	9
Total Quarter Hours	9
For information on our Paramedic Technology Program, see page 112.	

For more information, call
781.238.8400
www.neu.edu/uc

Health Information Administration Post-Baccalaureate Certificate (Major Code 868)



Accredited by the Commission on Accreditation of Allied Health Education (CAAHEP) in cooperation with the American Health Information Management Association's Council on Accreditation

Prerequisite Coursework

1. One year of Anatomy and Physiology with Laboratory: grade of C or better.
Suggested courses: BIO 4161/BIO 4165, BIO 4162/BIO 4166, BIO 4163/BIO 4167.
2. Advanced PC Software. Suggested course: MIS 4236.
3. Statistics. Suggested course: ECN 4254.

Core Courses

		quarter hours
HMG 4301	Healthcare Delivery Systems * †	3
HMG 4215	Health Law* †	3
HMG 4400	Healthcare Finance*	3
HMG 4411	Research for Managers*	3
HRM 4310	Human Resource Management*	3
HSC 4301 HSC 4302	Pathophysiology 1, 2*	6
MIS 4342	Advanced Database	3

Professional Courses

HIA 4100	Medical Terminology Workshop* ** (Students may elect to take HIA 4200)	1
HIA 4315 HIA 4316	Health Information Administration 1, 2*	6
HIA 4328 HIA 4329	Nomenclature and Classification 1, 2*	6
HIA 4330	Current Procedural Terminology (CPT)*	3
HIA 4335 HIA 4336 HIA 4337	Clinical Practicum 1, 2, 3*∞	8
HIA 4415	Healthcare Quality Management*	3
HIA 4430 HIA 4431	Health Information Management 1, 2*	6
HIA 4500	Health Information Computer Systems*	3
HIA 4520	Topics in Health Information Administration*	3
HIA 4530	Healthcare Systems/Computerized Patient Record Systems*	3

Total Quarter Hours

66

*Students must receive a C or better in this course. Only one professional course may be repeated. Students who receive a grade of D in more than one course will be withdrawn from the program. A quality-point average of 2.5 is essential in order to enter any of the three clinical courses. Post-Baccalaureate Certificate students must complete their program of study with at least a q.p.a. of 2.5 in order to receive a certificate from University College. Certificate students who successfully complete their programs of study are eligible to take the National Credential Examination.

**Students without healthcare experience are strongly encouraged to take HIA 4200.

†It is recommended that these courses be taken at the beginning of the student's course of study.

∞Liability insurance is required for these courses.

Full bachelor's degree program available. See page 37.

For more information, call 617.373.2525.
www.neu.edu/uc



Medical/Clinical Coding Certificate Program (Major Code 876)



The Certificate Program in Medical/Clinical Coding and Classification Systems will prepare students to be employed as medical coders in hospitals and ambulatory healthcare facilities, insurance companies, medical billing offices, managed care organizations, and physician offices. They will learn the technical knowledge and skills necessary to accurately code medical/clinical diagnoses and procedures for optimal reimbursement to healthcare providers and to permit retrieval of information for patient care, planning, and facility management and for reimbursement between healthcare providers and insurers and/or third party payers. They will acquire the necessary information and understanding of coding and classification systems to assign valid diagnostic and/or procedure codes in compliance with legal and ethical standards. Students in the certificate program will learn how to abstract and code clinical data/information, using several different appropriate coding and classification systems. Students will also obtain skills to help them monitor the reliability, validity, completeness, and timeliness of coded data/information.

Core Courses quarter hours

BIO 4161/BIO 4165	Human Anatomy and Physiology 1/Lab for Human Anatomy and Physiology 1	3/1
BIO 4162/BIO 4166	Human Anatomy and Physiology 2/Lab for Human Anatomy and Physiology 2	3/1
BIO 4163/BIO 4167	Human Anatomy and Physiology 3/Lab for Human Anatomy and Physiology 3	3/1
HSC 4301 HSC 4302	Pathophysiology 1, 2	6
HIA 4200	Medical Terminology*	3

Major Concentration Courses

HIA 4328 HIA 4329	Nomenclature and Classification 1, 2	6
HIA 4330	Current Procedural Terminology (CPT)	3
HIA 4332	Medical/Clinical Coding Practicum	1

Total Quarter Hours 31

*A challenge exam is available for this course. Call 617.373.2525 for details.

The courses in this certificate program may be used for transfer credit into the post-baccalaureate certificate program or the bachelor's degree program in Health Information Administration.



Nursing Professional Advancement Program

Workshop Series

- Suturing for Advanced Practice Nurses
- Dermatologic Procedures in Primary Care
- Clinical Skills Update for Community Health Nurses
- 12 Lead ECG Interpretation

Holistic Health and Healing Series

- Science and Art of Impression: Relaxation, Imagery and Ritual for Holistic Healing
- Science and Art of Breath: Ancient Practice-Modern Application
- Science and Art of Touch

Hot Topics for Today's Nurses

- Understanding Complementary and Alternative Medicines: Herbal Agents
- Alzheimer's Today—Diagnosis, Treatment and Quality of Life
- Strategies for Infertility Management/Normalizing the Experience of Infertility in a Fertile World
- Wellness in the Workplace
- The Care and Education of the Patient of Hypertension
- Hidden Trauma: Domestic Violence Assessment and Interventions

For more information, consult course descriptions, pages 208-209.

For more information, call 617.373.2525.
www.neu.edu/tic

Medical/Dental School Preparation

Medical School Admission Requirements

Northeastern University's Health Professions Advisory Committee provides academic advice and help with health professional school applications for students in any of the University's programs. Although advice is available to anyone enrolled in a course, the Committee can prepare evaluation letters only for those who have taken enough coursework at Northeastern to be able to have at least two Northeastern faculty members write letters to the Committee. **Information Sessions are scheduled at the Main Boston Campus during the Fall, Winter, and Spring Open House events. Call 617.373.5796 for the schedule and to reserve a place.** *Sources of Advice:*

- **MCAT, DAT Advisor, Application Procedures, and Entrance Exams**
Dr. C. H. Ellis, Jr., Chair
Health Professions Advisory Committee
Biology Department
Northeastern University
445 Richards Hall
617.373.4032
- **Course Schedules and Advising**
Cornelius O'Leary
Director, Office of Academic
and Student Affairs
University College
180 Ryder Hall
617.373.2408

Questions on Physics courses should be directed to the Lowell Institute at N.U. at 617.373.2500. Students must complete the courses below before taking the school's particular admission test (MCAT, DAT, and so on). **MCAT exam applications are available at the Department of Career Services, 103 Stearns Center, 617.373.2433.**

Course Sequences to Meet Minimum Admission Requirements

Completing one sequence from each category should meet the *minimum* requirements of most medical or dental schools. If you have questions about whether other courses might be applicable, talk with the Chair of the Health Professions Advisory Committee. Students are strongly encouraged to contact the medical or dental school(s) in which they are interested to obtain specific guidance on what courses the school may require for admission.

- General Biology:* BIO 4107/BIO 4110, BIO 4108/BIO 4111, BIO 4109/BIO 4112 (labs *must* be taken).
Other biology work, such as anatomy and physiology and microbiology, may be acceptable, depending on the professional school. General biology is highly recommended even if you have already taken the other courses.
- Chemical Principles:* CHM 4133/CHM 4140, CHM 4134/CHM 4141, CHM 4135/CHM 4142 (labs *must* be taken)
- Organic Chemistry:* CHM 4251/CHM 4254, CHM 4252/CHM 4255, CHM 4253/CHM 4256 (labs *must* be taken)
- General Physics:* PHY 4117/PHY 4196*, PHY 4118/PHY 4197,* PHY 4119/PHY 4198* (labs *must* be taken)
- Math:* MTH 4108, MTH 4120, MTH 4121*
- English:* ENG 4100, ENG 4101, ENG 4102
Two additional areas that are often required are behavioral science and biochemistry. The following courses meet these requirements.
- Behavioral Science:* PSY 4110, PSY 4111, PSY 4112, and/or other psychology courses
- Biochemistry:* CHM 4371, CHM 4372, CHM 4375 or BIO 4246, BIO 4247, BIO 4248

*These courses are scheduled through the Lowell Institute at N.U., a division of the School of Engineering Technology. Call 617.373.2500.

Paramedic Technology Certificate Program



University College provides the opportunity to earn a certificate as well as an associate's degree in Paramedic Technology. Major concentration areas involve the EMT-Paramedic's roles, responsibilities, and the subject areas required by Massachusetts Department of Public Health regulations and national guidelines. These areas include medical terminology, patient assessment and initial management, airway and ventilation, pathophysiology of shock, general pharmacology, trauma and burns, respiratory system, cardiovascular system, endocrine emergencies, nervous system, acute abdomen, genitourinary and reproductive systems, anaphylaxis, toxicology, alcoholism and drug abuse, infectious disease, environmental injuries, geriatrics, pediatrics, obstetrics, gynecological and neonatal emergencies, behavioral emergencies, EMS systems, medical/legal considerations, communications, rescue, major incident response, and stress management.

Whether or not students continue on to the associate level, all those certified Paramedic Technology may apply for and take the National Registry of Emergency Medical Technicians Paramedic Certification Examination.

Major Concentration/

Certificate Courses

			quarter hours
EMS 4117	EMS 4118	Emergency Medical	
EMS 4119	EMS 4120	Services 1, 2, 3, 4	24
EMS 4121	EMS 4122	Emergency Medical	
		Services 5, 6	22
EMS 4123		Emergency Medical	
		Service 7	3
BIO 4215/BIO 4217		Human Anatomy and	
		Physiology A/Lab for	
		Human Anatomy and	
		Physiology A	3/1
BIO 4216/BIO 4218		Human Anatomy and	
		Physiology B/Lab for	
		Human Anatomy and	
		Physiology B	3/1
Total Quarter Hours			57

Phlebotomy Certification Preparation

This program is geared toward students who want to enter the health field as well as to currently practicing phlebotomists who want to be certified. These courses are designed to prepare students for the national certification examinations in phlebotomy.

		quarter hours
CMN 4101	Fundamentals of Human Communication	3
MIS 4114	Introduction to PC Software	3
MLS 4104	Introduction to Phlebotomy *†	4
MLS 4108	Phlebotomy Applied Study**†† (offered Fall, Winter, Spring, and Summer Quarters)	2

Total Quarter Hours 12

*Preregistration is recommended, as this course frequently closes due to over-enrollment. U.S.A. High School diploma or GED is required. Foreign documents can be evaluated for equivalency. Form is available in the Office of Academic and Student Affairs, 180 Ryder Hall. It is required that CMN 4101 and MIS 4114 be taken before or concurrent with MLS 4104 and MLS 4108.

**Prerequisite MLS 4104. MLS 4108 is a 3-week full-time day practicum in an affiliated hospital.

†Special fee, see page 231.

††Do not preregister for MLS 4108. You can register for MLS 4108 during the quarter you take MLS 4104. You must pass MLS 4104 with a B- or higher to be eligible to take MLS 4108. Must have health clearance through Lane Health Center of Northeastern University. MLS 4104 and MLS 4108 require liability insurance coverage.

MLS 4112	Introduction to Point of Care Testing	3
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An opportunity for additional training in a hot new field.

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www.neu.edu/uc

For information and admission requirements,
see page 45 or call 781.238.8400.
www.neu.edu/uc

Physical Therapy Preparation Program

This set of U.C. courses may be utilized by students who wish to prepare for entrance into undergraduate and graduate programs in physical therapy. Taking these courses does not guarantee acceptance into Northeastern's or other physical therapy programs but does represent the typical prerequisites for entering this course of study.

		quarter hours
BIO 4161/BIO 4165	Human Anatomy and Physiology 1/Lab for Human Anatomy and Physiology 1	3/1
BIO 4162/BIO 4166	Human Anatomy and Physiology 2/Lab for Human Anatomy and Physiology 2	3/1
BIO 4163/BIO 4167	Human Anatomy and Physiology 3/Lab for Human Anatomy and Physiology 3	3/1
BIO 4107/BIO 4110	Biology 1/Lab for Biology 1	3/1
BIO 4108/BIO 4111	Biology 2/Lab for Biology 2	3/1
BIO 4109/BIO 4112	Biology 3/Lab for Biology 3	3/1
CHM 4133/CHM 4140	Chemical Principles 1/Lab for Chemical Principles 1	3/1
CHM 4134/CHM 4141	Chemical Principles 2/Lab for Chemical Principles 2	3/1
CHM 4135/CHM 4142	Chemical Principles 3/Lab for Chemical Principles 3	3/1
PHY 4117/PHY 4196	Physics 1/Lab for Physics 1*	4/1
PHY 4118/PHY 4197	Physics 2/Lab for Physics 2*	4/1
PHY 4119/PHY 4198	Physics 3/Lab for Physics 3*	4/1
MTH 4108	MTH 4120 Pre-Calculus,	
MTH 4121	Calculus 1, 2*	12
ENG 4100	ENG 4101 Critical Writing 1, 2	8
ENG 4102	Critical Writing Workshop	2

Total Quarter Hours 73

*These courses are offered through the Lowell Institute. Call 617.373.2500 for information.

For more information call, 617.373.5796.
www.neu.edu/uc

Speech-Language Pathology and Audiology Pre-Professional Preparation

This series of professional courses is designed to offer entry into the dynamic field of speech-language pathology and audiology for a variety of potential students, including those interested in applying for graduate work but who lack the necessary prerequisites, and those who are curious to explore the field as a possible career option. The series is offered at our Dedham and Boston campuses. Days and times can be found in the *Schedule*.

		quarter hours
Fall Quarter		
(DED)	SLA 4110	Introduction to Speech and Hearing 4
(DED)	SLA 4310	Language Acquisition 4
Winter Quarter		
(BOS)	SLA 4210	Anatomy & Physiology of the Vocal Mechanism 4
(BOS)	SLA 4315	Introduction to Audiology 4
Spring Quarter		
(BOS)	SLA 4110	Introduction to Speech and Hearing 4
(DED)	SLA 4310	Phonetics & Developmental Phonology 4

For more information, call 617.373.5796.
www.neu.edu/uc

Paralegal Studies

Quality Paralegal Training in Only 12 Weeks.



Boston-area employers in law firms, corporations, and government agencies specifically request Northeastern paralegals because they know that their training has been exceptional. Our unique attorney/paralegal team teaching approach gives our students the competitive edge in the marketplace. Each subject is taught by both a practicing attorney and professional paralegal whose combined work experience can provide the actual skills that are applicable and relevant in the work environment.

Northeastern's Paralegal Professional Program is intensive. Six areas of law, including probate, real estate, corporations, litigation, legal research, and legal ethics, are covered in about 100 class hours that include two evenings per week and six Saturdays. There is considerable homework, as well as projects and quizzes, but in 12 weeks, from start to finish, you'll be ready to begin a career as a paralegal.

Curriculum

Probate

- Intestacy, Wills, and Trusts
- Estate Administration
- Federal and State Estate Tax Preparation
- Closing the Estate

Real Estate

- How Property is Held
- Acquisition of Real Property
- Leases of Property
- Deeds, Mortgages, and Easements
- Condominium Practice
- Real Estate Closings

Corporations

- Partnerships, Corporations, Limited Liability Companies, Trusts, and Joint Ventures
- Organization of Corporations
- Articles of Organization, Minutes, By laws, and Stocks
- Securities Regulation
- Intellectual Property
- Termination of Corporate Existence

Litigation

- The Court System
- Litigation Procedure: Summons and Complaints, Service of Process
- Answers, Motions to Dismiss, and Counterclaims
- Motions for Summary Judgment
- Interrogatories
- Depositions and other Discovery Pleadings

Legal Research

- Fact-finding and Data Retrieval
- Local, State, and Federal Agencies
- Registries and Courthouses
- Municipal Records
- Internet and World Wide Web

Legal Ethics

- Situational Analysis of Ethical Dilemmas
- Confidentiality, Conflict of Interest, Moral vs. Legal Obligation, Insider Information

"Converse Inc. has employed many graduates of the Paralegal Program of Northeastern University. We continue to be impressed with the graduates' understanding of the various areas of the law and are pleased that several graduates have become valued members of our legal department."

Laura Kelley, Esq.
Converse Inc.



Legal Nurse Consulting

This intensive, 105-hour program is intended specifically for experienced nurses who need the legal skills and background to work as legal nurse consultants. Topics include the role of the legal nurse consultant, the scope of practice settings, and various practice areas. Participants are taught how to conduct legal and medical research, the litigation process, how to draft litigation documents, and legal theory as it relates to legal nurse consultants. Ethics and professionalism are also covered. Medical record analysis is covered in depth, including review, evaluation, identification, organization, indexing, and summarizing. Participants will work from start to finish with several hypothetical case studies, beginning with the initial client interview through discovery and trial preparation.

PRL 5100 Paralegal Certificate Program

This program is offered four times a year at a variety of campus locations, including Boston, Burlington, Dedham, Plymouth, and Worcester.

You can acquire a paralegal certificate from Northeastern University while earning 12 credits toward your University College degree. The entire certificate program is completed in just one academic quarter and will count as 12 quarter hours of open elective credit toward your University College degree. To qualify, University College students must have already earned at least 140 q.h., have a 3.0 q.p.a., and complete the admissions process. This program is offered at a special tuition rate.

For a brochure with a listing of Free
Open Houses,
call 617.373.7642.
www.neu.edu/cont-ed/paralegal

Alternative Delivery Systems

Network Northeastern

Network Northeastern, the instructional television system of Northeastern University, was created in 1983 to broadcast live credit and non-credit courses to Boston-area corporate sites via its four microwave channels. Beginning in 1987, Network Northeastern has been offering instruction nationwide on a Ku-band satellite uplink via the National Technological University (NTU) satellite system, a consortium of 46 U.S. universities. In addition to its broadcast programs, Network Northeastern provides production facilities for videotaping courses, lectures, and short programs to the University community.

For its local industry students, Network Northeastern broadcasts a complete master's degree program in electrical and computer engineering and in information systems. A variety of graduate courses are offered in computer science and mechanical engineering. An extensive selection of undergraduate courses and non-credit seminars is also offered. On-site advising, registration by fax or telephone, and information sessions are some of the services provided by the Network Northeastern staff to its corporate clients. Live classroom instruction is telecast daily between 8:00 a.m. and 10:00 p.m. on four channels to the company sites listed below and Northeastern's two suburban campuses in Burlington and Dedham.

Companies currently subscribing include AGFA Compugraphic (Wilmington), Alpha Industries (Woburn), Analog Devices, Inc. (Wilmington), Andover Control (Andover), Bolt, Beranek and Newman (Cambridge), Computervision Corporation (Bedford), Compaq (Hudson, Littleton, Shrewsbury), Charles Stark Draper Labs (Cambridge), Dynamics Research Corporation (Andover), Eastman-Gelatin Corporation (Peabody), EPSILON (Burlington), GTE (Needham), Hanscom AFB (Bedford), Houghton Mifflin (Boston), LTX (Westwood), M/A-COM (Lowell), Mass. Dept. of Revenue (Boston), MIT Lincoln Lab (Lexington), MITRE Corporation (Bedford), Newbridge Networks (Andover), Northrop Corporation (Norwood), Polaroid Corporation (Cambridge, Waltham), Quantum (Shrewsbury), Raytheon Company (Bedford, Sudbury, Tewksbury, Marlboro), Schneider Automation, Inc. (North Andover), Textron Defense Systems (Wilmington), Unisys Corp. (Cambridge), and Woods Hole Oceanographic Inst. (Woods Hole).

If you currently work at one of our receive sites and would like to find out who to speak to at your company or if you would like to learn how your company can subscribe, please call 617.373.5620. For detailed information on Network Northeastern or to access the current schedule, visit our Web site at www.neu.edu/network-nu.

On-Site Corporate Training

In a rapidly changing marketplace defined by global competition and technological advances that seem to happen overnight, organizations must create an environment of continuous learning to remain successful. They know that productivity increases as the knowledge level of their employees increases.

For 15 years, Northeastern University's Corporate On-Site Training Program has helped dozens of large and small companies maintain their competitive edge through education, training, and employee development programs that are flexible, cost-effective, and tailored to meet specific needs.

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Analog Devices, Inc.
Bell Atlantic
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and partner with Northeastern University
for your training needs.*

To discuss your on-site training needs, call Robert Jackson at 781.320.8057.

Ask for a free brochure!

www.neu.edu/cor-ed/onsite

NUOL

www.nuol.edu

Network Northeastern introduces another way to continue your education, gain new skills, obtain credit, or just take a course offered in a more convenient format—on-line via the Internet.

Since Fall 1998, students have been able to register and take courses completely on-line. Three complete certificate programs are offered: **WebMaster Technology**; **Internet Technologies**; and **Technical Writing**. Students have the opportunity to complete a certificate in one year—and never have to step foot on campus!

All courses are offered within the regular quarter system with extensive interaction available between faculty and students. Students complete course content and assignments on the Web and participate in threaded discussions, e-mail interaction, and receive full technical and student service support.

- WebMaster Technology Certificate (Non-Credit)
- Internet Technologies Certificate (Undergraduate Credit)
- Technical Writing Certificate (Undergraduate Credit)
- Data Communications Certificate (Non-Credit)
- Advanced WebDesign Certificate (Undergraduate Credit)

For full information on how to register, class starting dates, technical requirements to participate, and other information, see the Northeastern University OnLine Web Page: www.nuol.edu

COURSE DESCRIPTIONS

This section provides a short synopsis of each course and is divided into three sections: undergraduate, graduate, and continuing education course descriptions. As a rule of thumb, all courses begin with a prefix that identifies its department (see the codes, below) and is followed by four numbers. Courses that begin with a 4XXX, as in ACC 4101, are all undergraduate credit courses. Courses that begin with a 3XXX, as in MIS 3130, are all graduate credit courses. Courses that begin with a 5XXX, such as PM 5503, are all continuing education courses for continuing education units.

Not all the courses listed in this *Bulletin* are offered every year. A final list of courses to be offered is contained in the University College *Schedule*, as well as in individual program area brochures, which give the hours and days that classes meet and their locations. Schedules are issued prior to the Fall, Winter, Spring, and Summer quarters.

Course Description Glossary

ceu:	continuing education units
cl.:	hours required in class per week
Coreq:	Corequisite (may be taken at same time)
Prereq.:	Prerequisite (must be taken first)
q.h.:	quarter hours (credit earned)
SGS:	School of General Studies

Undergraduate Courses (Credit)

ACC:	Accounting	LNG:	Language-German
AFR:	African-American Studies	LNI:	Language-Italian
ART:	Art and Graphic Design	LNJ:	Language-Japanese
ASL:	American Sign Language	LNR:	Language-Russian
BIO:	Biology/Biotechnology	LNS:	Language-Spanish
BL:	Business Law	MGT:	Management
CD:	Career Development	MIS:	Management Information Systems
CHM:	Chemistry	MKT:	Marketing
CJ:	Criminal Justice	MLS:	Medical Laboratory Science
CMN:	Communication Studies	MTH:	Mathematics
ECN:	Economics	MUS:	Music
ED:	Education	NUR:	Nursing
EMS:	Emergency Medical Services	OM:	Operations Management
ENG:	English	PHL:	Philosophy and Religion
ESC:	Earth Sciences	PHY:	Physics
FI:	Finance	POL:	Political Science
HIA:	Health Information Administration	PSY:	Psychology
HMG:	Health Management	RE:	Real Estate
HRM:	Human Resources Management	SLA:	Speech-Language Pathology and Audiology
HSC:	Health Science	SOA:	Sociology-Anthropology
HST:	History	SOC:	Sociology
INT:	Interdisciplinary	TCC:	Technical Communications
JRN:	Journalism	THE:	Theatre
LNC:	Language-Chinese	TRN:	Transportation
LNF:	Language-French		

Graduate Courses



HRM:	Human Resources Management
MIS:	Management Information Systems (Strategic Internet Management)
NPM:	Nonprofit Management

Continuing Education Courses (Non-Credit)



BPS:	Business Performance Series
CIV }	Building Design and Management
ME }	Management
ENV:	Environmental, Health and Safety
ESL:	English as a Second Language
FI:	Finance
HRM:	Human Resources Management
HST:	History (Public History)
CHE }	Information Technology
COM }	• Networking and Communications
EE }	• Internet/Web Technology
TMG: }	• Software Engineering
	• Database Technology
	• Microelectronics/Computer Technology
NUR:	Nursing
PAY:	Payroll Administration
PM:	Project Management
PRL:	Paralegal
PUR:	Purchasing

Undergraduate Course Descriptions

ACCOUNTING

617.373.2418 • TTY 373.2825
www.neu.edu/uc

ACC 4101 Accounting Principles 1

(3 q.h.)

Study of accounting issues and objectives for proper preparation and interpretation of financial statements. Covers the nature, function, and environment of accounting, the basic accounting model, and the accounting cycle, while emphasizing accounting for service and merchandising businesses. Also covers cash and accounts receivable.

ACC 4102 Accounting Principles 2

(3 q.h.)

Continuation of ACC 4101. Emphasizes issues in financial reporting, valuation, and income measurement. Includes inventories, plant and equipment, bonds, present value, and stockholders' equity. *Prereq.* ACC 4101.

ACC 4103 Accounting Principles 3

(3 q.h.)

Continuation of ACC 4102. Statement of cash flows and preparation and interpretation of cost accounting information and its uses in the managerial decision-making process. Includes ratio analysis, analysis of cost-volume relationships, fixed and variable costs, break-even analysis, job order, and introduction to standard cost systems. *Prereq.* ACC 4102.

ACC 4105 Accounting Principles 1

and 2 (Intensive) (6 q.h.)

Same as ACC 4101 and ACC 4102.

ACC 4120 Essentials of Personal Income Taxation (3 q.h.)

Special course for non-accounting majors, designed to teach important aspects of personal income taxation on both federal and state levels. Tax laws, tax planning, and the preparation of individual returns are emphasized.

ACC 4301 Intermediate Accounting 1

(3 q.h.)

Introduction to financial accounting concepts, techniques, and procedures. Areas of intensive treatment are the develop-

ment and framework of accounting theory, basic financial statements, and cash and receivables. *Prereq.* ACC 4103.

ACC 4302 Intermediate Accounting 2

(3 q.h.)

Continuation of the study of accounting concepts and procedures. Detailed examination of inventories, tangible and intangible assets, and depreciation. *Prereq.* ACC 4301.

ACC 4307 Intermediate Accounting 3

(3 q.h.)

Continuation of the study of accounting concepts and procedures, with emphasis given to conceptual aspects of measurement of liabilities and to alternative accounting treatments and procedures. *Prereq.* ACC 4302.

ACC 4310 Cost Accounting 1 (3 q.h.)

Examines cost determination, cost behavior, costing systems, and an introduction to budgeting. *Prereq.* ACC 4103.

ACC 4400 Accounting Information Systems (Reserved) (3 q.h.)

Provides a broad survey of accounting information systems concepts and applications. Examines how computer technology impacts accounting information processing and how accounting systems can be effectively controlled. *Prereq.* MIS 4102, ACC 4310, ACC 4307, and 80 q.h.

ACC 4408 Intermediate Accounting 4

(Reserved) (3 q.h.)

This course completes the intensive study of measurement and reporting issues in modern accounting practice. Emphasis is given to such topics as stockholder's equity and earnings per share. *Prereq.* ACC 4307 and 80 q.h.

ACC 4411 Cost Accounting 2

(Reserved) (3 q.h.)

Continuation of ACC 4310, with special emphasis on cost allocation. Covers use of cost data in decision making and the control process. *Prereq.* ACC 4310 and 80 q.h.

ACC 4425 Auditing 1 (Reserved)

(3 q.h.)

An examination of auditing concepts and standards relevant to the attest function. Includes coverage of such topics as ethical

and legal responsibilities of the auditor, internal control, and auditor reports. *Prereq.* ACC 4400 and ACC 4307 and 80 q.h.

ACC 4426 Auditing 2 (Reserved)

(3 q.h.)

Continued examination of auditing concepts and standards relevant to the attest function. Includes compliance and substantive tests as they relate to specific transaction cycles and the use of statistical sampling techniques. *Prereq.* ACC 4425.

ACC 4440 Federal Income Taxes 1

(Reserved) (3 q.h.)

An in-depth study of federal tax law as it applies to individuals. In addition to a coverage of the law, tax planning concepts will be emphasized. *Prereq.* ACC 4307 and 80 q.h.

ACC 4441 Federal Income Taxes 2

(Reserved) (3 q.h.)

Continuation of ACC 4440. Property transactions, including non-taxable transactions, fundamental tax law relating to corporate formation and operation, partnerships, and S corporations. *Prereq.* ACC 4440.

AFRICAN-AMERICAN STUDIES

617.373.2416 • TTY 373.2825
www.neu.edu/uc

AFR 4131 African-American History: 1600-1900 (3 q.h.)

This survey covers the development of black America from the period of slavery through Reconstruction, with emphasis on the historical links between Africa and America and their impact on black development in the United States.

AFR 4132 African-American History: Twentieth Century (3 q.h.)

This course examines the development of black America from Reconstruction to the present and the effects of events in the United States and world history on the development of black America. There is special emphasis on contemporary issues and how these issues can be seen through a historical perspective.

AFR 4193 Africa Today (3 q.h.)

With increasing numbers of nations striving for economic and political control in Africa, and with imperialist and colonial ideas remaining in the living memory of Africans, Africa presents a complex political and social picture to the rest of the world. This course examines some of the salient features of black art, politics, and identity in Africa.

ART AND GRAPHIC DESIGN

617.373.2416 • TTY 373.2825

www.neu.edu/uc

ART 4103 History of Art to 1400 (3 q.h.)

Survey of the history of art and architecture from pre-historic times to the Renaissance. It includes the major works of art and architecture of Egyptian, Greek, Roman, Early Christian, Byzantine, Romanesque, and Gothic periods. The works are examined in the context of the social, political, and cultural forces of their time. Slide lectures and discussions.

ART 4104 History of Art Since 1400 (3 q.h.)

Survey of the history of art and architecture from the Renaissance to the twentieth century. It includes the major works of art and architecture of the Renaissance, Baroque, and Modern periods, with an emphasis on the external forces that affected them. Slide lectures and discussions.

ART 4105 Art Through the Ages (3 q.h.)
Concentrated historical survey of Western art from prehistoric cave paintings to the twentieth century. Includes the study of major monuments, artists, and stylistic developments found in the Pre-Classical, Classical, Medieval, Renaissance, and Baroque periods and in nineteenth- and twentieth-century Europe and America. Slide lectures and discussions.

ART 4106 Introduction to Art (3 q.h.)
Introduction to the language of the visual arts, with an emphasis on style, techniques, and content in painting, sculpture, graphic arts, and architecture. The course includes slide lectures, discussions, and visits to museums and art galleries.

ART 4110 Modern Art (3 q.h.)

Examination of major movements and developments in painting and sculpture from the late nineteenth century to the present. Emphasizes changing aesthetic views and the artistic, philosophical, historical, sociological, and political influences shaping those views and the modern movement as a whole. Slide lectures and discussion.

ART 4112 Visual Foundations: Two-Dimensional Design (Studio)* (3 q.h.)

An introduction to the fundamental elements of two-dimensional design to explore the concept of pictorial order. Lecture and studio classes lead to an understanding of the principles of organization and formal elements of design as they apply to two-dimensional art.

ART 4113 Visual Foundations: Three-Dimensional Design (Studio)* (3 q.h.)

An introduction to the fundamental elements of three-dimensional design, including mass, volume, line, plane, and texture. Lecture and studio classes examine the use of formal elements and attributes of form as they are used to organize space. *Prereq.* ART 4112.

ART 4121 Principles of Drawing (Studio)* (3 q.h.)

Introduction to the fundamental principles of translating the three-dimensional world on to a two-dimensional page. While working from observation, students explore the language of line, shape, and value to create an illusion of form, space, and light.

ART 4122 Introduction to Figure Drawing (Studio)* (3 q.h.)

Introduction to drawing the human form. Includes basic studies in anatomy, proportion, negative/positive space, contour, gesture, mass, line, composition, and drawing technique. Slide lectures, critiques, and weekly sessions drawing from the model. (*Laboratory fee.*) *Prereq.* ART 4121 or instructor's permission.

ART 4123 Drawing Workshop (Studio)* (3 q.h.)

Introduction to more advanced problems in the analysis of visual language and its creative organization. Emphasizes strengthening drawing techniques and developing a personal style. *Prereq.* ART 4122 or instructor's permission.

ART 4127 Basic Painting (Studio)* (3 q.h.)

Introduction to the fundamentals of painting. Includes formal studio assignments in the study of color, light, pictorial space systems, form, texture, and composition to establish a foundation for more individual, creative expression. Critiques and slide lectures as needed. *Prereq.* ART 4121 or instructor's permission.

ART 4128 Intermediate Painting (Studio)* (3 q.h.)

Fundamental principles of painting, followed by more advanced studies in shape, scale, texture, brushstroke, and edge as well as color, light, form, and composition. Examines problems in a variety of stylistic approaches and techniques from the past and the present. Critiques and slide lectures as needed. *Prereq.* ART 4127 or instructor's permission.

ART 4129 Painting Workshop (Studio)* (3 q.h.)

Individual development through a structured, project-oriented approach. Encourages recognition of the conceptual aspects of painting, as well as the development of a personal painting style and unique visual imagery. Critiques and slide lectures as needed. *Prereq.* ART 4128 or instructor's permission.

ART 4136 Basic Watercolor Painting (Studio)* (3 q.h.)

Practice and creative expression in the technical fundamentals of watercolor.

ART 4139 Visual Foundations: Color (Studio)* (3 q.h.)

Exploration of the objective nature and expressive possibilities of color. Through class work and projects, students examine the major theories and laws of color, its harmonies and special characteristics, as well as color psychology, symbolism, and orchestration. Students discover their intuition for color and develop its application in art and design.

ART 4140 Graphic Communication and Production (3 q.h.)

Overview of the design and production processes of printed materials. Examines the designer's role in concept development and layout and introduces repro-

**Courses designated "(Studio)" meet for 3 1/2 hours.*

graphics, typesetting, printing and color techniques, paper, and bindery methods. The scheduling and economic factors involved in bringing a piece to print are also addressed.

ART 4141 Graphic Design 1 (Studio)* (3 q.h.)

Introduction to professional problem solving in graphic design, including typographic and pictorial elements and their integration with verbal content to communicate ideas. Emphasis is on the fundamentals of visual thinking, concept development, and two-dimensional layout. Students gain experience with the design process from thumbnail sketches to the finished presentation. *Prereq. ART 4112 (or ART 4135) and ART 4139.*

ART 4142 Graphic Design 2 (Studio)* (3 q.h.)

Intermediate study and creative work in graphic design, with emphasis on creating overall design concepts for client presentations. Students explore effective problem-solving techniques by taking a variety of projects from concept to finished presentation. *Prereq. ART 4141 and ART 4151.*

ART 4143 Advertising Design (Studio)* (3 q.h.)

Introduction to advertising and to the language and design problems commonly met in the field. Study and creative work in advertising research analysis, layout, and preparation of client presentations. Marketing fundamentals are also addressed. *Prereq. ART 4151 or instructor's permission.*

ART 4151 Typography (Studio)* (3 q.h.)

The evolution of typography and its current applications. Emphasizes understanding basic typographic terms and techniques, acquiring composition skills such as copyfitting and type specification, understanding typography as symbol and as written record, exploring design concepts through typography, and learning the creative potential of new typesetting systems. Limited enrollment. (*Laboratory fee.*)

ART 4160 Basic Photography (Studio)* (3 q.h.)

Use of the camera, the negative, and the black-and-white print for the beginning student. Includes weekly shooting assignments, demonstrations, and hands-on darkroom experience. (*Laboratory fee.*)

ART 4161 Intermediate Black and White Photography (Studio)* (3 q.h.)

Continuation of ART 4160. Focuses on further practice in darkroom skills and production of clear and expressive images. (*Laboratory fee.*) *Prereq. ART 4160.*

ART 4163 Introduction to Color Photography (Studio)* (3 q.h.)

Basic color theory and contemporary photographic processes and practices. Students work with color negative materials and print from color slides and negatives. Color printing facilities are provided. Lectures and critiques when appropriate. (*Laboratory fee.*) *Prereq. ART 4160 or equiv.*

ART 4169 Introduction to Alternative Printing Processes (Studio)* (3 q.h.)

Focuses primarily on nonsilver photographic printing processes and allows students to learn from antique photographic processes and manipulation of modern Polaroid prints. (*Laboratory fee.*) *Prereq. ART 4160.*

ART 4171 American Cinema (3 q.h.)

This course explores the uniquely distinguishing characteristics of American cinema. These range from such formal elements as camera angles, lighting, editing, sound, acting, narrative structure, and construction of point of view. The course will also analyze such recurring concerns of American cinema as the individual and community, issues of masculinity and violence, urban alienation, uprootedness, and adolescence. The directors whose work will be discussed include Michael Cimino, Martin Scorsese, Robert Altman, Francis Ford Coppola, and John Ford.

ART 4173 International Cinema (3 q.h.)

This course examines films of such diverse countries as France, Italy, Greece, India, Japan, and Argentina and shows how film style and film language are culturally based and reflect the underlying values of culture. The course also analyzes the differences in the construction of narrative and point of view in the films of the different countries. The impact of cultures with communal or extended family social structures on camera angles and sound is also examined. The directors whose work will be studied include Karel Reisz, Claude Chabrol, Luchino Visconti, Kenji Mizoguchi, and Satyajit Ray.

ART 4174 Themes in Film (3 q.h.)

This course takes one theme as its subject and explores that theme fully through films from different countries. The themes include family relationships, gender, coming of age, and war, as well as the journey/road film, the concert/music film, and the exploration of the "other" in film. The course focuses on different portrayals of a given theme through analysis of film language such as camera angles, sound, editing, narrative structure, and construction of point of view and how these relate the story of the film.

ART 4175 History of Graphic Design (3 q.h.)

Graphic design from the mid-nineteenth century (the Industrial Revolution) to the present, with references to earlier influences. Focuses on the evolution of the graphic design field, its nature and function, major periods and trends, and the influence of technology and society. Slide lectures and discussion.

ART 4181 Introduction to Computer Graphics (Studio)* (3 q.h.)

Introduction to the terminology, concepts, and applications of computer-aided graphic design. Through lectures, demonstrations, and labs, students explore the range of computer graphics applications on personal computer (DOS and MAC) systems, input and output devices, and the advantages and limitations of computers as design tools. Limited enrollment. (*Laboratory fee.*) *Prereq. ART 4141.*

ART 4183 Electronic Publishing Systems (Studio)* (3 q.h.)

Designed to teach the computer novice how to apply the basics of desktop publishing software for business and corporate publications. Students will use page layout programs such as Quark Xpress or Aldus Pagemaker. Design, page layout, typography, hardware, and management issues will be applied to actual publications and business documents. Limited enrollment. (*Laboratory fee.*) *Prereq. ART 4181 and ART 4151.*

**Courses designated "(Studio)" meet for 3 1/2 hours.*

ART 4185 Creative Imaging: Custom Computer Design (Studio)* (3 q.h.)
Scanning and image enhancement techniques are utilized to create original visuals appropriate for advertising and publishing graphics as well as fine art. Limited enrollment. (*Laboratory fee.*) *Prereq.* ART 4181.

ART 4187 Advanced Computer Illustration (Studio)* (3 q.h.)
Advanced computer illustration studies using popular vector-based drawing programs such as Adobe Illustrator, Aldus Freehand, and Corel Draw. Limited enrollment. (*Laboratory fee.*) *Prereq.* ART 4185.

ART 4188 Advanced Raster Graphics (Studio)* (3 q.h.)
Identification and application of pixel/raster-based paint programs such as Adobe Photoshop. Limited enrollment. (*Laboratory fee.*) *Prereq.* ART 4185.

ART 4189 Advanced Electronic Publishing Design (Studio)* (3 q.h.)
Identification and application of layout, design, imposition, and trapping programs such as Quark Xpress, Adobe Photoshop and Illustrator, DK&A INposition, and Trapper. Using these programs, students will develop a production plan to minimize problems that arise during the prepress and printing operations. Limited enrollment. (*Laboratory fee.*) *Prereq.* ART 4187.

ART 4191 3D CADD Applications (Studio)* (3 q.h.)
This course is designed to provide the basic understanding of features and operational protocol needed to operate a Computer-Aided Design Program. The course will explore drafting and technical features common to the computer graphic industry. The instructional methods will include discussion and demonstrations of drafting and illustration concepts, software operation demonstrations, and hands-on computer applications. Students will develop portfolio-quality materials as a requirement of the course. Limited enrollment. (*Laboratory fee.*) *Prereq.* ART 4183.

ART 4193 Designing Web Graphics (Studio)* (3 q.h.)
Introduction to electronic design and digital imaging for use in developing Web sites. Will acquaint students with the use of Adobe Photoshop and basic design

theory, including visual elements, layout, and color theory as they pertain to electronic graphics and incorporating photograph-based images into electronic format. Topics will include cross-platform and browser-safe colors, input techniques, creating buttons, and resolution. The course will use a comparative approach to Web site design. Limited enrollment.

ART 4194 Designing Web Graphics 2 (Studio)* (3 q.h.)
Continuation of ART 4193 in on-line format. Students must have access to Photoshop. *Prereq.* ART 4193.

ART 4195 Introduction to Digital Imaging (Studio)* (3 q.h.)
Introduction to digital imaging for visual artists. Acquaints the beginner with the use of Adobe Photoshop to create or manipulate photographic imagery. Weekly assignments, demonstrations, hands-on lab experience, and a final portfolio. Limited enrollment. (*Laboratory fee.*)

ART 4196 Digital Imaging Projects (Studio)* (3 q.h.)
Continuation of ART 4195. Real-world digital imaging will be explored through discussion, demonstrations, and personal portfolio development. Limited enrollment. (*Laboratory fee.*) *Prereq.* ART 4195.

ART 4204 Italian Renaissance Art (3 q.h.)
Survey of Italian painting, sculpture, and architecture of the fifteenth and sixteenth centuries, with special attention to their historical, cultural, and social contexts. Considers how Renaissance ideals were reflected in the renewed interest in classical harmony and order and in the growing self-awareness, individualism, and naturalism of the time. Covers such artists as Giotto, Donatello, Botticelli, Michelangelo, da Vinci, Raphael, and Titian.

ART 4220 American Art (3 q.h.)
American painting and sculpture from colonial times through the early 1930s. Includes the study of painting from itinerant colonial "limners" through Copley, Benjamin West, and the English tradition; the Hudson River School; Eakins, Hopper, Marin, Stella, and O'Keeffe; and the founding of American Modernist painting. Also examines sculpture from colonial gravestone reliefs through Rush, Augur, and the public monuments of French, Saint-Gaudens, and Calder.

ART 4223 American Architecture (3 q.h.)
American architecture from the colonial period through the early 1930s. Includes the seventeenth-century Early American style, the eighteenth-century Georgian style, the Republican style, mid-nineteenth-century Revival styles, the Stick-and-Shingle styles, Richardsonianism, Sullivan and the rise of the skyscraper, and Frank Lloyd Wright.

ART 4228 Twentieth-Century Architecture (3 q.h.)
A study of the forms and principles of European and American architecture of the twentieth century, with particular emphasis on the work of such key figures as Frank Lloyd Wright, Mies van der Rohe, Le Corbusier, and Louis Kahn and such influential movements as the Dutch de Stijl, Russian constructivism, and American post-modernism.

ART 4230 History of Photography (3 q.h.)
Developments in photography from the early daguerreotypes to the present. Includes major movements, styles, artists, and significant technological developments. Slide lectures and assigned readings.

ART 4400 Portfolio Development Workshop (Studio)* (formerly ART 4186 Computer Graphic Design Portfolio) (3 q.h.)
Hands-on class allows students to design page layout, illustration, and photo-imaging projects through weekly critiques and design projects. Includes portfolio design, content, and delivery. Limited enrollment. (*Laboratory fee.*) *Prereq.* All requirements for the computer graphics certificate or major courses in the graphic design and visual communications degree. (Not open to students who have taken ART 4186.)

ART 4810 Honors Program 1 (4 q.h.)
Opportunity to undertake an in-depth research study project. See page 219 for details. *Prereq.* 96 q.h., 3.5 q.p.a.

ART 4811 Honors Program 2 (4 q.h.)
See ART 4810.

ART 4812 Honors Program 3 (4 q.h.)
See ART 4810.

**Courses designated "(Studio)" meet for 3 1/2 hours.*

ART 4815 Advanced Tutorial 1 (3 q.h.)
Opportunity to take upper-level course independently. See page 219 for details.
Prereq. 87 q.h.

ART 4816 Advanced Tutorial 2 (3 q.h.)
See ART 4815.

ART 4820 Independent Study 1 (3 q.h.)
Opportunity to undertake special research. See page 219 for details. *Prereq.* 96 q.h., 3.0 q.p.a.

ART 4821 Independent Study 2 (3 q.h.)
See ART 4820.

ART 4822 Independent Study 3 (3 q.h.)
See ART 4821.

AMERICAN SIGN LANGUAGE

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ASL 4101 American Sign Language 1 (4 q.h.)
Introduction to American Sign Language, the language used by members of the Deaf community in the United States and parts of anglophone Canada. Focuses on conversation in signs, basic rules of grammar, and cultural aspects of the Deaf community.

ASL 4102 American Sign Language 2 (4 q.h.)
Continuation of basic American Sign Language and culture study, in which students further their ability to describe and discuss everyday matters and situations in a culturally appropriate manner, using their growing sign vocabulary, more complex grammatical principles, and communicative strategies that assist in being understood by sympathetic Deaf listeners. *Prereq.* ASL 4101.

ASL 4201 Intermediate American Sign Language 1 (4 q.h.)
Focuses on further developing visual-spatial orientation and manipulation skills, sign vocabulary, and complex sentence structures. Student goals are to learn to handle most uncomplicated communications and social situations in a culturally appropriate way. *Prereq.* ASL 4102.

ASL 4202 Intermediate American Sign Language 2 (4 q.h.)
Continued work on developing a number of strategies for opening, sustaining, and closing general conversations on a range

of topics; students further develop the ability to question, narrate, and give increasingly detailed descriptions of activities, interactions, plans, and directions; and understand and make themselves understood by ASL users. *Prereq.* ASL 4201.

ASL 4301 Advanced American Sign Language Proficiency 1 (4 q.h.)
Continued vocabulary building, refinement of grammatical principles, and practice of effective communicative strategies used to make oneself understood. Focuses on the structure and use of connected discourse. Students begin to converse in a clearly participatory fashion and to narrate and describe, linking sentences together smoothly. *Prereq.* ASL 4202.

ASL 4302 Advanced American Sign Language Proficiency 2 (4 q.h.)
Continuation of Advanced ASL 1. Student goal is to demonstrate the ability to initiate, sustain, and close a wide variety of communication situations, from simple to complex; to communicate facts and talk casually about topics of current public and personal interest; to discuss, narrate, and describe, linking sentences together smoothly; and to understand and be easily understood by native ASL users. *Prereq.* ASL 4301.

ASL 4305 American Sign Language Lab (0 q.h.)
Lab is designed to give students practice in American Sign Language. Lab is limited to 10 students and has a different topic each quarter. *Prereq.* ASL 4101.

ASL 4410 Linguistics of American Sign Language (3 q.h.)
For skilled ASL signers. Conducted in ASL, the course is descriptive and data-oriented rather than theoretical. Includes the parts of a sign, building words in ASL, sentence structure, the meaning and issue of iconicity, organization of sentences according to old and new information, and the structure of stories. Also, grammatical features of ASL, such as classifiers, specifiers, verb modulations and aspects, and the role of facial expression. *Prereq.* ASL 4302 and ENG 4501.

ASL 4411 Deaf History (3 q.h.)
The history of Deaf people in the Western world, with emphasis on the American Deaf community, its language, education, and relations with hearing society. *Prereq.* ASL 4302 and ASL 4412.

ASL 4412 American Deaf Culture (3 q.h.)
The status of Deaf people as both a linguistic and cultural minority. Raises questions concerning the nature of signed language and its varieties, the education of Deaf people, the historical treatment of deafness, the sociological and cultural makeup of Deaf individuals. *Prereq.* ASL 4302.

ASL 4413 ASL Literature (3 q.h.)
Covers various genres of literature by and about Deaf people. Concentrates on Deaf characters and the influences Deaf culture and Deaf history have on the literary works. Includes selected works from the early 1900s to the present, including videotaped materials. *Prereq.* ASL 4302 and ASL 4412.

ASL 4415 Deaf Community Practicum (3 q.h.)
Forty hours of service in programs and agencies within the Deaf community. Biweekly seminar on issues of social and professional dynamics, empowerment, and interactions of Deaf and hearing people. *Prereq.* ASL 4302, ASL 4410, ASL 4412, and either ASL 4411 or ASL 4413.

ASL 4600 Introduction to Interpreting (3 q.h.)
Overview of the field of interpretation. Emphasis is on exploring ASL-English interpretation as a career option by identifying requisite responsibilities, skills, and aptitudes; the process of becoming an interpreter; employment options; and current issues in the field. *Prereq.* ASL 4302, ENG 4501, ASL 4410, ASL 4412, and either ASL 4411 or ASL 4413; *co-requisite with Deaf Community Practicum.*

ASL 4601 The Interpreting Process 1 (4 q.h.)
Study of the process of interpretation, overview of theoretical models, practice of requisite skills and process tasks, application of skills and theory to the translation process. *Prereq.* ASL 4600 plus a clear pass on the screening for entry.

ASL 4602 The Interpreting Process 2 (4 q.h.)

Continuation of the study of the interpretation process, including practice of requisite skills and process tasks of increased complexity. Application of process skills, contrastive cultural analysis, and teaming skills to the consecutive interpretation process. *Prereq.* ASL 4601 and ASL 4609.

ASL 4603 The Interpreting Process 3 (4 q.h.)

Continuation of the study of the interpretation process, including practice of requisite skills and process tasks of increased complexity, and application of process skills and contrastive group dynamics and discourse analysis to the simultaneous interpretation process. *Prereq.* ASL 4602 and ASL 4609.

ASL 4604 Special Topics in Interpreting (3 q.h.)

Exploration of various topics in the field of interpreting and/or the theory and practice of specialized work. Topics rotate and may include current professional and ethical models; health issues for interpreters; interpreting in mental health, legal, or medical settings; and interpreting for deaf-blind individuals. Students may take this course up to three times for credit, provided they focus on a different topic each time. *Prereq.* instructor's permission.

ASL 4607 Interpreting Lab (4 q.h.)

Practice in consecutive and simultaneous interpreting skills, with constructive feedback. *Prereq.* ASL 4603.

ASL 4608 Practicum 1 (4 q.h.)

Sixty hours of observation of interpreters at work in various settings serving Deaf people. Biweekly seminar focuses on linguistic and ethical questions and dilemmas. *Prereq.* All other courses in the *Interpreting certificate*.

ASL 4609 Contrastive Analysis for Interpreters (4 q.h.)

Study of the major linguistic features and cultural features of Deaf and non-Deaf communities. Compares and contrasts basic similarities and differences in the structures of ASL and English and the values, beliefs, and norms of the Deaf and non-Deaf communities. Primary focus is on pragmatics and discourse and on increasing students' awareness of American Deaf culture and general American cul-

ture. *Co-requisite with Interpreting Process 1. Prereq.* ASL 4600 plus a clear pass on the screening for entry.

ASL 4610 Interpreters at Work (3 q.h.)

Exploration of the day-to-day concerns of working as an interpreter, focusing on group dynamics and various populations, settings, and environmental factors; business aspects of the field; and how and when to work as a team. Focuses further attention on increasing awareness of American Deaf culture and general American culture. *Prereq.* ASL 4607.

ASL 4612 Interpreter Role and Ethics (4 q.h.)

Exploration of ethical standards and dilemmas in ASL-English interpretation through the use of discussion, hypothetical situations, and role play. Emphasis is on values, ethics, and morality; professional principles: power, responsibility, and group dynamics; and the decision-making process. *Prereq.* ASL 4602 and ASL 4609.

ASL 4613 Practicum 2 (4 q.h.)

See ASL 4608.

BIOLOGY

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BIO 4107 Biology 1 (Principles)

(formerly BIO 4103) (3 q.h.)

This course provides an introduction to a variety of biological concepts. Plant and animal characteristics are surveyed through comparisons of cell structure and function. Specific topics include Cytology, Histology, Physiology, Genetics, Cellular respiration, and Botany. *The required laboratory is BIO 4110, Lab for Biology 1. (1 q.h.) (Laboratory fee.)*

BIO 4108 Biology 2 (Diversity)

(formerly BIO 4104) (3 q.h.)

Experience the diversity of life through a systematic survey of organisms. Beginning with unicellular algae, this course follows the major evolutionary trends leading to complex forms. Specific elements of structure, function, and natural history will be examined. *The required laboratory is BIO 4111, Lab for Biology 2. (1 q.h.) (Laboratory fee.) Prereq.* BIO 4107 or equiv.

BIO 4109 Biology 3 (Animal) (formerly BIO 4105) (3 q.h.)

This course provides an introduction to basic animal structure and function. The anatomy of each body system is described. Physiological processes, such as hormonal control, nerve impulse transmission, muscular contraction, and the immune response, are introduced. *The required laboratory is BIO 4112, Lab for Biology 3. (1 q.h.) (Laboratory fee.) Prereq.* BIO 4107, BIO 4108 or equiv.

BIO 4125 Biology of AIDS (3 q.h.)

This course will explore the biological aspects of AIDS in order to understand the complexities inherent in finding a cure. Topics include the origins of the disease, the destruction of the immune system, factors influencing the pathogenesis of HIV in AIDS, and modes of transmission. The epidemiology and projected spread, as well as the medical aspects of current treatment modalities, will be discussed.

BIO 4161 Human Anatomy and Physiology 1 (formerly BIO 4175) (3 q.h.)

Topics include terminology and basic gross organization of the body, functional anatomy of the musculoskeletal system, and an overview of the thoracic and abdominal viscera. The laboratory is concerned with the study of the human skeleton and appropriate dissections. *The required laboratory is BIO 4165, Lab for Human Anatomy and Physiology 1. (1 q.h.) (Laboratory fee.) Although there is no prereq., prior coursework in general biology is recommended.*

BIO 4162 Human Anatomy and Physiology 2 (formerly BIO 4176) (3 q.h.)

Properties of cell membranes; anatomy and physiology of the nervous system; special senses; endocrinology. The laboratory includes membrane physiology, gross and microscopic anatomy of the nervous and endocrine system, and testing of somatic and special senses. *The required laboratory is BIO 4166, Lab for Human Anatomy and Physiology 2. (1 q.h.) (Laboratory fee.) Prereq.* BIO 4161 or equivalent is recommended.

BIO 4163 Human Anatomy and Physiology 3 (formerly BIO 4177) (3 q.h.)

Anatomy and physiology of the respiratory, cardiovascular, digestive, urinary, and reproductive systems; fetal development. The laboratory emphasizes the physiology of these systems. *The required laboratory is BIO 4167, Lab for Human Anatomy and Physiology 3. (1 q.h.) (Laboratory fee.)* Prereq. BIO 4162 or equiv.

BIO 4207 Microbiology 1 (formerly BIO 4190) (2 q.h.)

Historical survey of microbiology, emphasizing the close relationship between the development of technology and science. Comparisons of procaryotic and eukaryotic cellular morphology and physiology, including bioenergetics, carbohydrate metabolism, and cellular nutrition and growth. *The required laboratory is BIO 4210, Lab for Microbiology 1. (1 q.h.) (Laboratory fee.)* Prereq. BIO 4109 or equiv.

BIO 4208 Microbiology 2 (formerly BIO 4191) (2 q.h.)

Viral replication, microbial genetics, bacterial taxonomy, and evolution are studied. Principles of immunity with techniques such as ELISA, RIA, immunoelectrophoresis, and monoclonal antibodies. *The required laboratory is BIO 4211, Lab for Microbiology 2. (1 q.h.) (Laboratory fee.)* Prereq. BIO 4207 or equiv.

BIO 4209 Microbiology 3 (formerly BIO 4192) (2 q.h.)

Emphasis is on medically and environmentally important microorganisms. The principles of epidemiology and public health related to food, water and sewage microbiology, and the role of microbes in fermentation, industrial, and environmental microbiology are discussed. *The required laboratory is BIO 4212, Lab for Microbiology 3. (1 q.h.) (Laboratory fee.)* Prereq. BIO 4208 or equiv.

BIO 4215 Anatomy and Physiology A (formerly BIO 4178) (3 q.h.)

(Registration restricted to paramedic students.) Human anatomy and physiology. Describes the cell and its physiology, the structure of tissues, the anatomy and physiology of the cardiovascular system and blood, the respiratory system, and the urinary system. *The required laboratory is BIO 4217, Lab for Anatomy and Physiol-*

ogy A. (1 q.h.) BIO 4215 and BIO 4216 may not be substituted for BIO 4161, 4162, 4163.

BIO 4216 Anatomy and Physiology B (formerly BIO 4179) (3 q.h.)

(Registration restricted to paramedic students.)

Continuation of BIO 4215. Describes the anatomy and physiology of the nervous system, skeletomuscular system, digestive system, endocrine and reproductive systems. *The required laboratory is BIO 4218, Lab for Anatomy and Physiology B. (1 q.h.)* Prereq. BIO 4215. BIO 4215 and BIO 4216 may not be substituted for BIO 4161, 4162, and 4163.

BIO 4224 Ecology 1 (3 q.h.)

Introduction to the concepts of limiting factors, biogeochemical cycles, trophic levels, and energy transfer and their relationship to the structure and function of populations, communities, and ecosystems. Prereq. Knowledge of General Biology.

BIO 4225 Ecology 2 (3 q.h.)

Principles applied to soil ecology and aquatic systems with special references to physicochemical factors, typical habitats, and communities. Eutrophication and toxic chemical groundwater pollution. Prereq. BIO 4224 or equiv.

BIO 4226 Ecology 3 (3 q.h.)

Introduction to air pollution, including its sources and its effects on human health. The greenhouse effect, acid rain, and ozone depletion are discussed, as well as the fundamentals of pesticides and pest control. Study of land resources. Prereq. BIO 4225 or equiv.

BIO 4235 Genetics 1 (3 q.h.)

Topics include Mendelian inheritance, the physical basis of heredity and genetic variation (linkage, crossing over, and chromosome mapping), bacterial genetics, extra-chromosomal inheritance, nucleic acid structure, nucleic acid replication, and the expression of genes. Prereq. BIO 4109.

BIO 4236 Genetics 2 (3 q.h.)

Molecular basis of heredity, including gene mutations and repair, applications of recombinant DNA, genomic organization, and regulation of gene expression. Reflections on emerging topics, including behavior, cancer, development, evolution, immunity, and population genetics. Prereq. BIO 4235 or equiv.

BIO 4237 Genetics Laboratory (2 q.h.) Genetics 3, the lab course complementing BIO 4235 and BIO 4236 (Genetics 1 and 2), includes experiments based on classical genetics (*Drosophila*, *Sordaria*) and modern genetic engineering (cloning, restriction mapping, and PCR). Prereq. BIO 4236 or equiv.

BIO 4246 Cell Biology 1 (3 q.h.)

Chemical composition, structure of cells and organelles, transport processes, cell motion and excitability, and growth. Prereq. BIO 4109, and CHM 4135 or equiv.

BIO 4247 Cell Biology 2 (3 q.h.)

Cellular energy supply, enzyme function, respiration and metabolism, photosynthesis and other synthetic pathways, and control of cellular processes. Prereq. BIO 4246 or equiv.

BIO 4248 Cell Biology Laboratory (2 q.h.)

Laboratory techniques in cell biology, including study of whole cell types, extracellular matrix and the cellular skeleton, cell membrane processes, cell fractionation, and isolation of cellular organelles. Study of nucleic acids and cellular protein separation. (Laboratory fee.) Prereq. BIO 4247 or equiv.

BIO 4258 Advanced Human Physiology 1 (3 q.h.)

Study of human physiology, emphasizing cellular processes and underlying organ functions and the interactions and control of organ systems. Selected physiological topics are considered as time allows. Prereq. Knowledge of General Biology.

BIO 4259 Advanced Human Physiology 2 (3 q.h.)

Cardiovascular considerations; the immune system; the AIDS problem; biological control mechanisms; selected endocrine topics. Prereq. BIO 4258.

BIO 4300 Computer Applications for Life Science (3 q.h.)

This course is an introduction to calculative biology, using computer-aided solutions. It provides hands-on exercises employing mathematical equations and models in biology to achieve computer-assisted solutions using Visual Basic. The materials provided therein equip students with a sound foundation in object-ori-

ented programming and handling scientific equations before proceeding to advanced work on the subject.

BIO 4331 Medical Microbiology (3 q.h.) (Summer quarter only) Major characteristics of disease-producing organisms. *The required laboratory is BIO 4332, Lab for Medical Microbiology. (1 q.h.) (Laboratory fee.)* Prereq. BIO 4209 or professional laboratory experience in bacteriology.

BIO 4387 Histology 1 (formerly BIO 4374) (2 q.h.) Examination of cell structure and tissue organization, including epithelium, muscle, and connective tissues. Also covers skin, cartilage, bone, nervous system and brain. *The required laboratory is BIO 4391 Lab for Histology 1. (1 q.h.) (Laboratory fee.)* Prereq. BIO 4161 or permission of instructor.

BIO 4388 Histology 2 (formerly BIO 4375) (2 q.h.) Examination of blood, cardiovascular and lymphatic systems, gastrointestinal, including the oral cavity, GI tract, liver and gall bladder, the respiratory, urinary, and male and female reproductive systems. Also, the endocrine glands, the eyes and ears. *The required laboratory is BIO 4392, Lab for Histology 2. (1 q.h.) (Laboratory fee.)* Prereq. BIO 4387 or permission of instructor.

BIO 4425 Endocrinology (3 q.h.) Organization of the human endocrine system and the mechanisms of action of the secreted hormones will be reviewed. The course will emphasize the role of the endocrine system in the integration of human physiology. Physiological disorders associated with abnormal endocrine function will be discussed. Prereq. BIO 4163 or equiv.

BIO 4452 Parasitology (formerly BIO 4441) (3 q.h.) Parasitic organisms, particularly those affecting humans and domestic animals, and their life cycles, modes of transmission, and diagnosis and treatment. Includes microscopic examination of prepared and live material. *The required laboratory is BIO 4453, Lab for Parasitology. (1 q.h.) (Laboratory fee.)* Prereq. BIO 4107 or instructor's permission.

BIO 4459 Ornithology (3 q.h.) This course is designed for beginning bird-watchers and will include a series of course lectures and field trips covering the identification, life histories, ecology and behavior of resident birds of the New England area. The biology of birds, including evolution, functional morphology and physiology will be explored. The class schedule will be flexible and may include some early morning and/or weekend bird-watching field trips to local habitats. Prereq. *Knowledge of General Biology.*

BIO 4485 Ichthyology (3 q.h.) This course will be offered at the Northeastern University Marine Science Center in Nahant. An introduction to fish biology and systematics, emphasizing phylogenetic relationships in evolutionary, ecological, and behavioral contexts, with surveys of the distribution, competition, and community structures of local fish fauna. The class schedule will be flexible and may include field studies of salt water fishes. Prereq. *Knowledge of General Biology.*

BIO 4603 Scanning Electron Microscopy (formerly BIO 4600) (3 q.h.) Designed for laboratory personnel in the life sciences, medical, and biotechnology fields with no formal training in electron microscopy. This course offers practical, comprehensive instruction in the theory and practice of scanning electron microscopy (SEM). Laboratory exercises will provide a working knowledge of specimen preparation through the publication of quality electron micrographs. *(Laboratory fee.) Class limited to 12 students.* Prereq. *Laboratory experience.*

BIO 4604 Transmission Electron Microscopy (formerly BIO 4601) (3 q.h.) Designed for laboratory personnel in the sciences, medical, and biotechnical fields with no formal training in electron microscopy. This course offers practical, comprehensive instruction in the theory and practice of transmission electron microscopy (TEM). Laboratory exercises will emphasize routine specimen preparation, TEM operation and maintenance, and production of electron micrographs. *(Laboratory fee.) Limited to 12 students.* Prereq. *Laboratory experience.*

BIO 4605 Principles of Light Microscopy and Histotechnique (formerly BIO 4602) (3 q.h.) This course is designed to instruct life science, medical, and biotechnology students in the fundamental principles of light microscopy and its application in biological research. The framework of this course will involve a standard histological approach to specimen preparation, including chemical fixation, paraffin embedding, sectioning, and staining. Upon this framework more specialized techniques such as cryo-sectioning and fluorescence microscopy will be introduced. Finally, the student will be exposed to advanced techniques and emerging technologies in light microscopy. *(Laboratory fee.)* Prereq. *Laboratory experience.*

BIO 4700 Advanced Tutorial 1 (4 q.h.) Opportunity to take upper-level course independently. See page 219 for details. Prereq. 87 q.h.

BIO 4701 Advanced Tutorial 2 (3 q.h.) See BIO 4700.

BIO 4801 Independent Study 1 (4 q.h.) Opportunity to undertake special research. See page 219 for details. Prereq. 96 q.h. and 3.0 q.p.a.

BIO 4802 Independent Study 2 (3 q.h.) See BIO 4801.

BIOTECHNOLOGY

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BIO 4260 Cell, Tissue and Organ Culture (3 q.h.) General principles and techniques of tissue culture and preservation. The behavior of cells in culture, cell lines, and relevant media are discussed. Methodology of animal and plant culture and its use in virology, cancer research, and radiobiology. Prereq. *Cell Biology or permission of instructor.*

BIO 4455 Introduction to Biotechnology (3 q.h.) Examines the historical development, basic technologies, and commercial potential of biotechnology. Basic biological concepts are first reviewed, including the steps leading to the 20th-century revolution in molecular and cell biology. The technology of recombinant DNA, mono-

clonal antibody production, and nucleic acid probe development are outlined along with their therapeutic, diagnostic, and experimental uses. Newer, emerging technologies and applications are discussed where appropriate. *Prereq. one year each, college-level biology and chemistry, or permission of instructor.*

BIO 4461 Immunology (4 q.h.)

Biological, chemical, and physical attributes of antigens and antibodies, together with their serological interactions. *Prereq. one year each, college-level biology and chemistry, or permission of instructor.*

BIO 4501 Development of New Vaccines (3 q.h.)

The nature of infection, parasitic organisms (bacterial and viral), pathology, and immune responses will be discussed in terms of host-parasite interactions. Emphasis will be placed on methods used for the identification of potential vaccine antigens. New techniques for vaccine design, expression, and delivery are examined. Classical and current strategies used to produce effective vaccines will be discussed. Emphasis will be placed upon acquiring a general understanding and application of the process of vaccine development. *Prereq. one year each, college-level biology and chemistry, or instructor's permission.*

BIO 4510 Introduction to Immunodiagnosics (3 q.h.)

Provides a theoretical and practical understanding of modern applications of immunoassays. The course will cover the use of antibodies (structure and labeling) in a variety of assay formats. The course will emphasize the application of immunoassays in the biotechnology and clinical medical laboratories. *Prereq. BIO 4461 or permission of instructor.*

BIO 4511 Recombinant DNA Technology (3 q.h.)

Provides a solid coverage of recombinant DNA technology. Included are gene sequencing, PCR, protein engineering, and other major R-DNA techniques. The applications of R-DNA technology in plants, animals, and human gene therapy are included, as well as the industrial and pharmaceutical applications currently being developed in microbial host systems. *Prereq. BIO 4455 or equiv.*

BIO 4512 Biomolecular Purification and Downstream Processing (3 q.h.)

Principles and practice of separation, purification, filtration, and drying of biomolecules. Affinity chromatography, centrifugation techniques, membrane separations, tangential flow filtration, and freeze drying. Basic scientific principles as well as production and scale-up issues when operating under GLP and cGMP's. *The required lab is BIO 4518, Lab for Biomolecular Purification and Downstream Processing (1 q.h.). (Laboratory fee.)*

BIO 4513 Production Regulatory Affairs, Current Good Manufacturing Practices and ISO 9000 (3 q.h.)

Designed for degree and non-degree candidates. History of regulations and current interpretation of those regulations, including the CFR's, Points to Consider, and U.S. Pharmacopoeia. Considerations of implementation, including tracability, documentation responsibilities, personnel and process flow, segregation and labeling of products to prevent cross-contamination, quarantining and testing incoming reagents, in-process testing, sterility testing, environmental monitoring, facility requirements, QC testing, Quality Assurance functions, batch records, training records, gowning, and validations.

BIO 4514 R & D Regulatory Affairs, Good Laboratory Practices and Clinical Trials (3 q.h.)

Designed for degree and non-degree candidates. History and current interpretation of regulations involved in development of new biotechnology products. Focus on issues critical to research and process development prior to licensure of biologic, drug, and device products by the FDA. Transition from GLP's to cGMP's as a product moves through clinical trials. Basic understanding of auditing clinical trials.

BIO 4515 Bioreactors and Fermentation/Lab (3 q.h.)

Principles of microbiology, biochemistry, cell biology, and genetic engineering as applied to bioreactor technology. Fermentation kinetics, media composition, and oxygen requirements of bacterial, yeast, and mammalian cell culture. Bioreactor design, scale-up, and cell separation considerations. *The required lab is*

BIO 4519, Lab for Bioreactors and Fermentation (1 q.h.). (Laboratory fee.) Prereq. BIO 4207 or equivalent.

BIO 4516 Quality Control and Validation Issues/Lab (3 q.h.)

Designed for degree and non-degree candidates. Course offers practical instruction in the basics of quality control and process/facility validation for the biotechnology industry. Review of appropriate regulations. It includes personnel and process flow, environmental and water testing, sterility testing, and incoming material and in-process testing. Establishment of a master validation plan, description of facility, equipment, and process validations as well as cleaning validations. *The required lab is BIO 4520, Lab for Quality Control and Validation Issues (1 q.h.). (Laboratory fee.)*

BIO 4521 Industrial Biotechnology Techniques (3 q.h.)

Principles of quality assurance, quality control, fermentation, purification, and support services will be addressed. Industrial skills such as clean room gowning, writing an SOP, following a solution record and following a batch record will be emphasized. Students will be familiarized with calibrating and using the tools of the industry, including the background scientific information on how these tools work. General bioreactor design, cleaning and sterilization as related to the industry will also be discussed. Separation principles (filtration, column chromatography and centrifugation) and enzyme kinetics will be incorporated into the purification lectures. Resin types, membranes, and filters as related to how they are utilized in large scale purification will be discussed.

BIO 4612 Advanced Recombinant DNA Technology (3 q.h.)

Study of microbial molecular biotechnology, including bioremediation, biomass utilization, and large-scale fermentation processes using recombinant microorganisms. The isolation of human disease-causing genes by using recombinant DNA technology is discussed, and the course concludes with a brief introduction to the regulation of molecular biotechnology and the patenting of biotechnology inventions. *Prereq. BIO 4511.*

BIO 4700 Advanced Tutorial 1 (4 q.h.)
Opportunity to take upper-level course independently. See page 219 for details.
Prereq. 87 q.h.

BIO 4701 Advanced Tutorial 2 (3 q.h.)
See BIO 4700.

BIO 4801 Independent Study 1 (4 q.h.)
Opportunity to do an independent research project. See page 219 for details.
Prereq. 96 q.h., 3.0 q.p.a.

BUSINESS LAW

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BL 4101 Law 1 (3 q.h.)
Introduction to the legal system. Study of the nature, formation, and essential elements of contracts, including performance and remedies for breach. Also covers agency law, including the rights and duties of principal and agent, the scope of authority, and relationships to third persons.

BL 4102 Law 2 (3 q.h.)
Sales as governed by the Uniform Commercial Code, including the law of warranty, business organizations, partnerships, corporations, and other important business forms. *Prereq.* BL 4101.

BL 4105 Law (Intensive) (6 q.h.)
Same as BL 4101 and BL 4102.

BL 4120 Estate and Personal Planning (formerly Law for Personal Planning) (3 q.h.)
Legal aspects of personal and family planning, including consumer rights, wills and estate planning, marital law, real estate purchase, tenants' rights, and other selected topics of interest.

BL 4314 Computer Law (3 q.h.)
Study of legal issues involving computers, including acquisition of software and hardware, proprietary rights and licenses, rights of privacy, computer crimes, and other relevant topics.

BL 4316 International Business Law (3 q.h.)
Surveys the leading principles in international business law as applied in decisions of domestic and international courts; the sources, development, and authority of international business law, such as the laws of the European Common Market;

and the making, interpretation, and enforcement of treaties, and the organization and jurisdiction of international tribunals.

BL 4320 Intellectual Property: What You Need to Know (1 q.h.)
For entrepreneurs, creative individuals, and those in the knowledge, information, entertainment, and consumer products industries, this course will teach you how to identify and protect the intellectual property assets in your business or work. Using case studies, students will work with the basics of copyright, trademark, patent, trade secret, contract, privacy, and other relevant law. Students will explore the challenges and opportunities presented in cyberspace and the increasing importance of branding goods and services in today's marketplace. To the extent possible, the course is custom-tailored to participants' specific concerns.

BL 4325 Law for Small Business (1 q.h.)
This course addresses the issues involved in small business start-up. The most common legal concerns facing the entrepreneur will be presented, analyzed, and discussed. Topics will include choice of business entity, trade name protection, franchising, employment and out-sourcing issues, concerns in partnership and other multi-party enterprises, analysis of legal restrictions; insurance and other risk management tactics, and other matters vital to the success of the venture.

BL 4330 Education Law (1 q.h.)
Presents the basics of the law of higher education. For staff and administrators currently employed by post-secondary institutions and students aspiring to careers in higher education. Topics will include analysis of education institutions as legal entities, management of liability risks, government regulation of higher education, the college/student relationship, discrimination and sexual harassment, the rights of the disabled and other matters of concern to colleges and universities.

CAREER DEVELOPMENT

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CD 4100 Managing Career Decisions (3 q.h.)
Understand the importance of managing one's career over the life span. Students complete a self-assessment including an evaluation of skills and competencies, values, interests, and personal style. Students explore a variety of career options through both library and field research. Emphasis on decision making, goal setting, and implementing career strategies and educational plans. Overview of job campaign includes resume preparation, network development, and interviewing techniques. (*Note: CD 4102, CD 4103, and CD 4104 combined are equivalent to CD 4100.*)

CD 4102 Career Decision Making (1 q.h.)
For students who are unclear about career direction. A day-long session intended to help students develop self-understanding, which is the basis of sound career decisions. Through individual and group activities participants will identify their skills and interests and address personality and lifestyle preferences. Students will be introduced to a decision-making model and given an opportunity to develop a preliminary action plan by identifying next steps for themselves in the career development process.

CD 4104 Career Planning/Self-Marketing (1 q.h.)
For students who are clear about direction and preparing for a job search campaign. A day-long session intended to help students develop effective strategies for job searching in today's market. Particular attention will be given to developing and using a network of professional contacts. On-line job search resources will also be highlighted. Job search correspondence, including resumes and cover letters, will be reviewed. Interviewing skills will be covered, with special attention given to preparing for interviews, handling difficult questions, and negotiating salary and benefits. Finally, students will set realistic goals for their job search and develop an action plan to meet those goals.

CD 4105 Succeeding in the Workplace (1 q.h.)

Targeted to adults moving from support to professional positions and individuals starting new jobs. This course addresses the changing expectations of employers and the strategies and skills needed by employees to develop career resilience. Topics of discussion will include understanding organizational culture, building relationships within and outside organizations, benchmarking skills, anticipating and preparing for change, and committing to life-long learning. Specific skills, behaviors, and attitudes required of employers will be emphasized.

CD 4112 Building An International Career (1 q.h.)

Provides an overview of the world marketplace, the most typical patterns of building an international career, the main employment sectors, and the essentials in approaching the job market in other countries. Emphasis will be placed on thorough research techniques plus strategies for effective networking. Students will conduct independent research, including informational interviews, and will write a report to demonstrate the research process and to summarize at least one viable plan of action that targets a specific industry in another country.

CD 4114 Exploring Entrepreneurship (1 q.h.)

Starting and operating a kiosk business is examined as a model for small business start-up. Topics will include determining what product to sell, choosing a location, negotiating a lease, hiring staff, licensing, and marketing. Participants will be introduced to the business plan and its importance in the success of a business. Students will develop an action plan for pursuing a business opportunity.

CD 4120 Careers in Technology (1 q.h.)

This 8-hour seminar is designed for anyone who is interested in pursuing a career in information technology or in keeping up with the changes in the rapidly growing field. Through digital presentations, panel discussions, and interview sessions, individuals will examine recent developments in information technology, the impact of these changes on the workplace, different tracks/paths in technical careers as well as how to conduct research and informational interviews. Other topics will include short and long term career

planning, career management, and the assessment of academic programs in technology.

CHEMISTRY

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CHM 4133 Chemical Principles 1 (formerly CHM 4130) (3 q.h.)

Fundamental chemistry concepts, such as symbols, formulas, equations, atomic weights, naming of compounds, chemical reactions, principles of solubility, net ionic equations, redox reactions, solution concentration units, and calculations based on equations. Examples and problems are used to develop these concepts. *The required laboratory is CHM 4140, Lab for Chemical Principles 1. (1 q.h.) (Laboratory fee.) Prereq. MTH 4108 or MTH 4112 or equiv. (can be taken concurrently).*

CHM 4134 Chemical Principles 2 (formerly CHM 4131) (3 q.h.)

Thermochemistry, gases, liquids, atomic structure, periodic properties, bonding, molecular structure, and intermolecular forces. Examples and problems are used to develop these concepts. *The required laboratory is CHM 4141, Lab for Chemical Principles 2. (1 q.h.) (Laboratory fee.) Prereq. CHM 4133 or equiv.*

CHM 4135 Chemical Principles 3 (formerly CHM 4132) (3 q.h.)

Solutions and their behavior, kinetics, equilibrium, acids and bases, and organic chemistry. Examples and problems are used to develop these concepts. *The required laboratory is CHM 4142, Lab for Chemical Principles 3. (1 q.h.) (Laboratory fee.) Prereq. CHM 4134 or equiv.*

CHM 4136 Chemistry for the Health Professional (3 q.h.)

Introduces inorganic, organic and biochemistry with applications from the health sciences and related fields. Emphasis is on improving critical thinking skills and the development of a scientific framework to enable students to use and associate chemistry concepts and problem solving techniques in decisions about major issues related to the environment, medicine, and health. Topics include chemical bonding, reactions, nuclear radiation, gases, buffer systems, hydrocarbons, carboxylic acids, esters and

nitrogen-containing compounds, carbohydrates, lipids, proteins, enzymes, vitamins, hormones, nucleic acids, metabolic pathways and energy production.

CHM 4233 Analytical Chemistry for the Biosciences (formerly CHM 4224) (3 q.h.)

Principles and theories of volumetric, gravimetric, and instrumental analysis. Includes selected topics from CHM 4238, CHM 4239, and CHM 4240. Application made in the laboratory with analyses of unknown samples. *The required laboratory is CHM 4237, Lab for Analytical Chemistry. (1 q.h.) (Laboratory fee.) Prereq. CHM 4135 or equiv.*

CHM 4238 Analytical Chemistry 1 (formerly CHM 4230) (3 q.h.)

Principles of gravimetric and titrimetric analysis (wet chemistry). Introduces statistics as applied to analytical chemistry and examines such topics as chemical equilibrium and acid-base equilibria in simple and complex systems. Gravimetric and titrimetric experiments are performed. *The required laboratory is CHM 4234, Lab for Analytical Chemistry 1. (1 q.h.) (Laboratory fee.) Prereq. CHM 4135 or equiv.*

CHM 4239 Analytical Chemistry 2 (formerly CHM 4231) (3 q.h.)

Continuation of CHM 4238. Covers complex formation titration, precipitation titrations, and oxidation-reduction titrations. Electrical methods of analysis, such as potentiometry, electrolysis, coulometry, and polarography, are discussed, and titrimetric analyses and experiments involving electricity are performed. *The required laboratory is CHM 4235, Lab for Analytical Chemistry 2. (1 q.h.) (Laboratory fee.) Prereq. CHM 4238 or equiv.*

CHM 4240 Analytical Chemistry 3 (formerly CHM 4232) (3 q.h.)

Spectrophotometry as a method of analysis, including ultraviolet, visible, infrared, and fluorescence methods; flame emission; and atomic absorption. Studies of solvent extractions and chromatographic methods of separation, such as gas-liquid chromatography and liquid chromatography. *The required laboratory is CHM 4236, Lab for Analytical Chemistry 3. (1 q.h.) (Laboratory fee.) Prereq. CHM 4239 or equiv.*

CHM 4251 Organic Chemistry 1

(formerly CHM 4261) (3 q.h.)

Nature of carbon in organic compounds. General principles of structure, nomenclature, preparation, uses, and reactions of aliphatic hydrocarbons: alkanes, alkenes, alkynes, cycloalkanes. Constitutional and stereo isomerism. Introduces free radical and ionic mechanisms of reactions. The laboratory deals with the preparation and properties of compounds discussed in the lecture. *The required laboratory is CHM 4254, Lab for Organic Chemistry 1.* (1 q.h.) (Laboratory fee.) Prereq. CHM 4135 or equiv.

CHM 4252 Organic Chemistry 2

(formerly CHM 4262) (3 q.h.)

Stereoisomerism: enantiomers and diastereo-isomers, optical activity. Introductory chemical kinetics and reaction mechanisms. Nucleophilic substitution reactions of alkyl halides and related compounds. General principles of structure, nomenclature, preparation, and reactions of alcohols, ethers, and epoxides. Structure of benzene, electrophilic aromatic substitution reactions. The laboratory deals with the preparation and properties of compounds discussed. *The required laboratory is CHM 4255, Lab for Organic Chemistry 2.* (1 q.h.) (Laboratory fee.) Prereq. CHM 4251 or equiv.

CHM 4253 Organic Chemistry 3

(formerly CHM 4263) (3 q.h.)

Continuation of CHM 4252. Emphasizes the application of chemical conversions to synthetic problems. Includes functional derivatives of carboxylic acids, sulfonic acids and their derivatives, amines, diazonium compounds, phenols, aldehydes, and ketones. The course is completed by an introduction to biomolecules, including carbohydrates, peptides and proteins, and oligonucleotides. The use of organic compounds in the medical sciences is emphasized. The laboratory deals with the preparation and properties of compounds discussed. *The required laboratory is CHM 4256, Lab for Organic Chemistry 3.* (1 q.h.) (Laboratory fee.) Prereq. CHM 4252 or equiv.

CHM 4321 Instrumental Analysis 1

(3 q.h.)

Basic theory of electrochemistry and electrochemical methods of analysis, including electrode and cell potentials, potentiometric titrations, direct

potentiometry (pH meters and specification electrodes), coulometry, voltammetry, polarography, electrogravimetry, and conductometric methods. Prereq. CHM 4232 or equiv. (This course may serve as preparation for certain graduate courses.)

CHM 4322 Instrumental Analysis 2

(3 q.h.)

Basic theory of absorption and emission spectroscopy, including ultraviolet and visible spectroscopy, molecular fluorescence and phosphorescence, atomic absorption spectroscopy (flame, arc, spark, and plasma), and infrared and X-ray spectroscopy. Prereq. CHM 4321 or equiv. (This course may serve as preparation for certain graduate courses.)

CHM 4323 Instrumental Analysis 3

(formerly Radiochemistry) (3 q.h.)

Topics covered include X-ray spectroscopy, radiochemical methods, and chromatographic separations. Chromatographic separations include chromatography, high performance liquid chromatography, and planar chromatography. Prereq. CHM 4322 or equiv. (This course may serve as preparation for certain graduate courses.)

CHM 4371 Biochemistry 1 (3 q.h.)

Cellular organization, pH buffers, biochemistry of carbohydrates, lipids, amino acids, proteins, enzymes, vitamins, and nucleic acids. Prereq. CHM 4253 or equiv.

CHM 4372 Biochemistry 2 (3 q.h.)

Bioenergetics, metabolism of carbohydrates, lipids, amino acids and nucleotides. Biosynthesis of proteins, DNA and RNA. Prereq. CHM 4371 or equiv.

CHM 4375 Lab for Biochemistry

(2 q.h.)

Introduces modern research techniques used in biochemistry and molecular biology. Topics include purification and characterization of proteins, kinetic properties of enzymes, isolation of high molecular weight DNA, recombination of DNA molecules in vitro, isolation of bacterial clones containing recombinant molecules, and in vitro mutagenesis. Prereq. CHM 4371 and CHM 4372.

CHM 4381 Physical Chemistry 1

(3 q.h.)

(Physical Chemistry is offered every other year.) Thermodynamics, thermochemistry, First and Second Laws, entropy, and

free energy in spontaneous processes. Prereq. CHM 4133 and MTH 4112 or equiv. (Offered in Fall term 2000.)

CHM 4382 Physical Chemistry 2

(3 q.h.)

Chemical equilibria, acids and bases, electrochemistry, colligative properties, phase diagrams, thermodynamics of multicomponent systems, and kinetic molecular theory. Prereq. CHM 4381 or equiv. (Offered in Winter term 2001.)

CHM 4383 Physical Chemistry 3

(3 q.h.)

Kinetics, quantum chemistry, and photochemistry. Prereq. CHM 4382 or equiv. (Offered in Spring term 2001.)

CHM 4388 Combinatorial Chemistry

(3 q.h.)

The objective of this course will be to provide an introduction to the rapidly evolving science of combinatorial chemistry. This discovery approach has received most attention in the area of drug discovery but is also used in material science and catalysis. Students will gain knowledge in peptide chemistry and its application to the discovery of ligands for biological receptors. Methods of solid-base synthesis will be discussed and the use of automation in synthesis, analysis and purification. The information of data handling, the design of diverse screening libraries and drug design will also be outlined. A sound knowledge of basic organic and analytical chemistry will be assumed. Prereq. CHM 4251 and CHM 4252.

CHM 4700 Advanced Tutorial 1 (4 q.h.)

Opportunity to take upper-level course independently. See page 219 for details. Prereq. 87 q.h.

CHM 4701 Advanced Tutorial 2 (3 q.h.)

See CHM 4700.

CHM 4801 Independent Study 1

(3 q.h.)

Opportunity to take special research. See page 219 for details. Prereq. 96 q.h., 3.0 g.p.a.

CRIMINAL JUSTICE

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CJ 4101 Administration of Criminal Justice (3 q.h.)

Surveys the contemporary criminal justice system from initial contact with the offender through prosecution, incarceration, and release into the community. Emphasis is on the major systems of social control: police, courts, corrections, and juvenile justice.

CJ 4103 Criminology 1 (3 q.h.)

Discusses the major theories of crime causation developed over the past two centuries. Explores the scope and nature of the current crime problem in the United States and examines the characteristics of specific criminal behavior.

CJ 4104 Criminology 2 (3 q.h.)

Examination of empirical knowledge about the crime problem in the United States, characteristics of criminals and victims, information about dangerous repeat offenders, and financial costs of crime. Assessment of crime measurement techniques, especially the Uniform Crime Reports and victimization surveys. *Prereq. CJ 4103.*

CJ 4108 Criminal Law (3 q.h.)

Examination of concepts, responsibilities, and liabilities of criminal law. Topics include basic definitions, evolution of the criminal law system, analysis of substantive criminal law, and interaction between federal and state constitutions. *Prereq. CJ 4114.*

CJ 4109 Criminal Procedure (3 q.h.)

Application of constitutional and statutory concepts, including statutory crimes, law of arrest, right to counsel, search and seizure, and applicable criminal procedures. Basic concepts and changing interpretations will be covered. *Prereq. CJ 4108.*

CJ 4114 Introduction to Law 1 (3 q.h.)

Provides an introduction to the law and the legal system of the United States. Discusses the fundamentals of our legal process and provides a summary description of both the private and public law system. Presents an overview of the traditional structure as well as the basic principles of law.

CJ 4115 Introduction to Law 2 (3 q.h.)

Continuation of CJ 4114. Introduces basic tort and contract principles, administrative law, governmental regulation of business, and topics of concern to criminal justice professionals and students in legal studies. *Prereq. CJ 4114.*

CJ 4118 Juvenile Law (3 q.h.)

Discusses the way society responds to juvenile offenders. Topics include juvenile offender legislation, juvenile case law, behavioral research studies, philosophy, history, delinquency, abuse and neglect, transfers and waivers, status offenders, and comparative law. *Prereq. CJ 4114.*

CJ 4125 Civil Liability (3 q.h.)

Addresses issues of civil liability and policy development in federal, state, and local criminal justice agencies and their counterparts in corrections and security. The historical development of civil rights litigation and methods of risk response used by criminal justice and private agencies will be examined. *Prereq. CJ 4114.*

CJ 4201 Criminal Investigation 1 (3 q.h.)

Evolution of contemporary investigative techniques and study of investigative effectiveness and organization in crimes such as arson, sexual offenses, larceny, burglary, robbery, forgery, and homicide. Discusses available sources of information and effective interviewing and interrogation techniques.

CJ 4202 Criminal Investigation 2 (3 q.h.)

Continuation of Criminal Investigation 1. Focuses on staffing the investigation unit, information management, establishment of investigative priorities, fiscal restraints, the relationship of criminal investigation to patrol and special units, and crime scene searches, including the collection, preservation, and laboratory examination of evidence. Examines special operations such as electronic surveillance, raids, and undercover operations; affidavit construction; court preparation and testimony; and the use of scientific methods. Studies those federal laws dealing with due process and other constitutional protections. *Prereq. CJ 4201.*

CJ 4203 Criminalistics 1 (3 q.h.)

Survey of the elements of microscopy, spectroscopy, and basic chemistry as they apply to the study of materials that comprise physical evidence. Covers the proce-

dures for searching, sketching, and photographing crime scenes as well as the recognition, collection, marking, and handling of physical evidence, emphasizing the importance of maintaining the integrity of each sample. Studies the types of analysis, their value and limitations with regard to glass, soil, hairs and fibers, firearms, toolmarks, and questioned documents.

CJ 4204 Criminalistics 2 (3 q.h.)

An introduction to the analysis of biological items of physical evidence collected at the scene of the crime or submitted for laboratory examination and to the fields of serology and toxicology. Covers methods of collecting samples and the value of blood distribution patterns, as well as laboratory techniques used to identify and characterize blood stains and other body fluids. Pharmacology and toxicology of medical and chemical substances having potential for misuse and abuse are studied. *Prereq. CJ 4203.*

CJ 4207 Comparative Police Systems (3 q.h.)

Study of police systems in Anglo-Saxon, Continental, Asian, Russian, African, and other cultural traditions. Focuses on influence of nineteenth-century English and twentieth-century American police traditions on policing systems.

CJ 4214 Police and Community (3 q.h.)

The role and function of police with regard to contemporary social problems, including drugs, prostitution, domestic violence, gangs, serial murderers, dangerous offenders, and illegal aliens. Course examines police interactions with individuals and groups and police responsibility in areas of civil rights and civil disorders. *Not open to those who have taken CJ 4211 or 4212.*

CJ 4215 Policing in a Democratic Society (3 q.h.)

Introduction to the philosophy and techniques of contemporary policing including the history, traditions, and social developments that have resulted in the present system. Emphasis will be placed on the effects of economics, social developments, and Supreme Court decisions on the evolution of the modern system. Traces the shift from technology policing to community and problem-solving policing.

CJ 4216 Police Organization (3 q.h.)
Provides an overview of the implementation and maintenance of police organizational strategy, including a definition of its elements. Concepts such as leadership, structure, organizational culture, administrative and personnel processes, and budgeting are reviewed. *Prereq. CJ 4215.*

CJ 4217 Police Operations (3 q.h.)
Examines the current strategy of American police. Topics include the demand for police service, their goals and mission, and the resources and tactics they adopt to pursue those goals. Police accountability and the measurement of effectiveness of operations will be a focus for discussion. *Prereq. CJ 4216.*

CJ 4301 American Correctional System (3 q.h.)
Overview and critical analysis of correctional system, emphasizing interrelatedness of all aspects of corrections. Topics include historical developments, policy analysis, decision making, the range of treatment/punishment options available, including probation and parole. Current correctional philosophy and treatment approaches on federal, state, and local levels are assessed.

CJ 4304 Jail Administration and Management (3 q.h.)
Study of local adult correctional institutions, ranging from police lock-ups to jails and houses of corrections. Topics include administrative, management, and security issues; intake, regional, and network approaches; local versus state control; offender classification, programs, residential care, inspection, and standards; pretrial detention; staffing patterns; interface with courts and law enforcement; release programs; emergency management; and suicide prevention.

CJ 4305 Case Management and Correctional Services (3 q.h.)
Overview of treatment and rehabilitative work in jail and prison environments. Topics include basic counseling concepts and techniques, individual and group therapy, institutional services, and assessment of fiscal and personnel requirements of innovative approaches. *Prereq. CJ 4301.*

CJ 4310 Community Corrections (3 q.h.)
Historical, philosophical, and pragmatic view of community corrections, analysis of alternatives to imprisonment or insti-

tutionalization. Topics include work and study release programs, family visiting furloughs, control and surveillance issues, cost effectiveness, community safety, managerial issues, residential/nonresidential programs, community resources, and volunteer involvement. *Prereq. CJ 4301.*

CJ 4311 Probation and Parole (3 q.h.)
Introduction to probation and parole as dispositions, systems or subsystems, processes, and offender statuses. Includes the history of probation and parole, their conditions and revocation procedures, offender eligibility requirements, supervision styles, due process issues, and prediction and measurements of effectiveness. The role of volunteers, and probation and parole officer responsibilities are also discussed. Introduces students to presentence investigations, shock probation, probation subsidy, expansion of probation into pretrial and restitution programs, and to current debates on the governmental framework of probation and parole, parole boards, and parole hearings. *Prereq. CJ 4301.*

CJ 4315 Prison Management (3 q.h.)
Studies the basic problems of correctional organization, organizational development and analysis, management by objectives, planning and budgeting, management styles, and personnel development.

CJ 4403 Introduction to Security (3 q.h.)
The organization and administration of security and loss-prevention programs in industry, business, and government. Emphasizes the protection of assets, personnel, and facilities and the relations between security organizations and government agencies.

CJ 4406 Security Management and Supervision 1 (3 q.h.)
The historical basis of the security management function and the development of the field in general and its various specialties. Examines concepts of organizational security and risk-management methods. *Prereq. CJ 4403.*

CJ 4407 Security Management and Supervision 2 (3 q.h.)
Organization, administration, and management of the security function, including the systems approach to security operations. Focuses on planning, organizing, staffing, directing, budgeting, con-

trolling, representing, and innovating. The manager's responsibility is also explored. *Prereq. CJ 4406.*

CJ 4408 Legal Aspects of Security Management and Operations (3 q.h.)
Provides a comprehensive examination of the legal environment and issues impacting security operations and management. Elements of criminal, civil, property, regulatory, and business law are analyzed from the perspective of organizational security management concerns. *Prereq. CJ 4403.*

CJ 4412 Computer Crime and Security (3 q.h.)
This course is designed to introduce crimes involving the use of computers, the federal and state laws addressing them, and the preventive and investigative methods used to secure computers, defend and prosecute offenders. Review and discussion of actual case studies and investigative experiences will be covered, with an overall focus on security and investigative problems associated with computer crime. *Prereq. MIS 4114.*

CJ 4420 Investigating High Technology Crime (3 q.h.)
This course examines the role of computers both as a tool of law enforcement and as evidence of a crime. Building on basic computer literacy skills, students will develop the necessary skills to safely and effectively analyze seized or down-loaded magnetic media, illustrate complicated criminal enterprises and the related financial transactions. Students will utilize IBM-compatible personal computers with database, spreadsheet, flow charting, and presentation graphics programs to analyze and present a case study. *Prereq. MIS 4114.*

CJ 4425 Security Systems and Technology (3 q.h.)
Examines advanced technologies and their integration into a holistic security program. Topics will include capital budgeting, requests for proposals, vendor selection and management, and evaluation of security systems (biometric, infrared, motion sensor, etc.) to meet organizational needs.

CJ 4503 Forensic Laboratory (3 q.h.)
A hands-on laboratory course focusing on individual experimentation. Surveys the basic examinations and techniques performed in a crime laboratory. Topics include general microscopy, hairs and fi-

bers, blood and other body fluids, paint, glass, soil, fingerprints, gunshot residue, toxicology, questioned documents, and firearm and toolmark examinations. (*Laboratory fee.*) *Prereq. CJ 4203 and CJ 4204.*

CJ 4504 Juvenile Justice (3 q.h.)

Examination of the contemporary juvenile justice system, with focus on the key decision points within the juvenile justice system, including jurisdiction, police, detention, court intake, adjudication, disposition, and aftercare. Critical issues facing the juvenile justice system components are discussed.

CJ 4506 Crime Victims (3 q.h.)

Examination of current theories and research relating to victims of crime. Particular attention to special victim groups such as children, the elderly, and women. Victim interactions with the criminal justice system are explored. Current victim initiatives such as restitution, mediation, compensation, and victim rights legislation are also assessed. *Prereq. CJ 4101 and CJ 4103.*

CJ 4507 Organized Crime (3 q.h.)

The nature and problems of organized crime, its causes and effects, comparative and historical roots, and activities, organization, and economics. Considers possible solutions and the scope of techniques used in combatting organized crime.

CJ 4509 White-Collar Crime (3 q.h.)

Basic survey of white-collar crime: the nature and extent of white-collar crime, the social-psychological makeup of white-collar crime typologies, present efforts directed toward its control, and inter-agency and jurisdictional problems and the benefits of cooperation.

CJ 4510 Terrorism (3 q.h.)

An overview of terrorism and why it has become so popular. Topics include the role of news media, political consequences of terrorism, the military as a resource, and the role of the hostage.

CJ 4511 Criminal Evidence (3 q.h.)

The fundamentals of criminal trial procedure and the rules of evidence as they apply to the trial of a criminal case. Students read and brief criminal court cases. *Prereq. CJ 4108 and CJ 4109.*

CJ 4512 Gender and Justice (3 q.h.)

Examines ways in which criminology, the criminal justice system, and the law contribute to the social construction of gender. Investigates cultural assumptions about female deviance, discourses on female crime, the criminal justice system, and legal assumptions about the meaning of equality. *Prereq. CJ 4101, CJ 4103, and CJ 4114.*

CJ 4515 Comparative Criminal Justice Systems (3 q.h.)

Examines the problems of crime and its control from a comparative perspective. Analyzes countries in terms of their incidence and type of deviance and crime as well as in terms of approach to social control and prevention of crime. Studies divergence between the United States and other countries in perceived causes of crime and differing approaches to rehabilitation and crime prevention. *Prereq. CJ 4101.*

CJ 4520 Special Topics in Criminal Justice (3 q.h.)

Examination of a variety of subjects and themes in criminal justice. Since topics change from quarter to quarter, students may take this course more than once, provided they focus on a different topic each time.

CJ 4701 Independent Study 1 (3 q.h.)

Opportunity to undertake special research. See page 219.

CJ 4702 Independent Study 2 (3 q.h.)

See CJ 4701.

CJ 4703 Independent Study 3 (3 q.h.)

See CJ 4701.

CJ 4805 Advanced Tutorial 1 (3 q.h.)

Opportunity to take upper-level course independently. See page 219 for details.

CJ 4806 Advanced Tutorial 2 (3 q.h.)

See CJ 4805.

COMMUNICATION STUDIES

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CMN 4101 Fundamentals of Human Communication (3 q.h.)

Introduction to the development of personal communication skills, with an emphasis on elements in the communication process. Includes discussion of language

use, nonverbal communication, listening, and feedback and the role each plays in communication transactions.

CMN 4102 Group Discussion (3 q.h.)

Provides strategies for effective meeting management by focusing on group dynamics and the functions and tasks required of participants. Develops skills for successful group interactions and various group discussion techniques.

CMN 4104 Effective Communication (Intensive) (6 q.h.)

Same as CMN 4101 and CMN 4102.

CMN 4105 Speaking Skills for Non-Native Speakers (3 q.h.)

A course for persons who have previously studied English but who need to develop oral communication proficiency. Following diagnostic testing, students participate in individualized and group instructional situations.

CMN 4111 Voice and Articulation (3 q.h.)

Development of the speaking voice, with emphasis on articulation, pitch control, and vocal variety and flexibility. Includes basic theory of the vocal mechanism.

CMN 4112 Advanced Voice and Articulation (3 q.h.)

Continuation of CMN 4111. *Prereq. CMN 4111 or instructor's permission.*

CMN 4150 Self-Concept and Communication (3 q.h.)

Through lectures, discussions, case studies, and classroom activities, students have an opportunity to become more aware of how our attitudes and habits affect our communication with others personally and professionally. Students will explore alternative communication patterns as they apply to these settings.

CMN 4151 Listening (3 q.h.)

Analyzes listening effectiveness in professional and personal situations. Reasons for poor listening, techniques for effective listening, and giving and receiving feedback are covered.

CMN 4152 Conducting Interviews in the Professions (3 q.h.)

Helps students apply the current theory and research of interviewing to professional contexts. Topics include selection interviews, performance appraisal inter-

views, information gathering, problem-solving interview, and persuasive interviewing.

CMN 4153 Techniques of Persuasion (3 q.h.)

Covers communication strategies used when attempting to influence others. Examines instances of persuasion as they occur in advertising, politics, social interaction, sales, and business.

CMN 4154 Negotiation Skills (3 q.h.)

Designed to introduce students to the techniques of dispute resolution. Particular attention is paid to the processes of mediation, facilitation, and negotiation. Through readings, lectures, and class activities, students will have the opportunity to explore methods of applying these skills to professional settings.

CMN 4155 Foundations of Organizational Communication (3 q.h.)

Discusses components of efficient organizational communication, common problems that organizations face, and approaches to solving these communication problems. Specific topics include improving organizational meetings, superior to subordinate communication, and use of communication technologies to meet organizational needs.

CMN 4160 Mass Communication (3 q.h.)

Examines the evolution of mass communication and the effects of mass communication on aspects of society such as education, sports, business, and entertainment. Reviews significant events in the development of today's media world.

CMN 4201 Argumentation (3 q.h.)

Develops students' critical-thinking abilities by analyzing specific argument contexts. Provides students with opportunities to develop, present, and refute arguments, enhancing skills essential to success in an increasingly complex society.

CMN 4221 Interpersonal Communication (3 q.h.)

Provides students with an opportunity to develop skills and strategies necessary for developing and maintaining effective personal and professional relationships. Topics include perception, self-disclosure, emotions, attitudes and values, nonverbal communication, language, improving communication climate, and methods of conflict resolution.

CMN 4225 Family Communication (3 q.h.)

Introduction to how communication affects the development and maintenance of family relationships. Topics include marital, parent/child, sibling, and extended family communication patterns; problem identification, and problem-solving skills in family communication.

CMN 4231 Gender Communication (3 q.h.)

Provides students with an understanding of how gender influences verbal and non-verbal communication. Emphasis on enhancing communication competency at work and in relationships.

CMN 4235 Intercultural Communication (3 q.h.)

Develops intercultural awareness. Topics include cultural differences in communication styles and assumptions, differing views of conflict and negotiation, and cross-cultural communication, including valuing and managing diversity in various settings.

CMN 4240 Managing Interpersonal Conflict (3 q.h.)

Basic concepts involved in the management of conflict in interpersonal situations, such as understanding attitudes about conflict, studying message patterns in conflict interactions, and exploring a variety of conflict resolution methods.

CMN 4251 Business and Professional Speaking (3 q.h.)

Covers practice in the organization and presentation of material to fit varying audiences. Emphasizes delivery techniques and effective presentation of ideas.

CMN 4252 Special Topics in Communication (3 q.h.)

Examination of a variety of subjects and themes in communication studies. Since topics change from quarter to quarter, students may take this course more than once, provided they focus on a different topic each time.

ECONOMICS

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ECN 4115 Economic Principles and Problems 1 (3 q.h.)

Application of the basic principles of economics to current public problems. Focusing on macroeconomics, students explore unemployment, inflation, national income and employment theory, and government expenditures and taxation.

ECN 4116 Economic Principles and Problems 2 (3 q.h.)

Continuation of ECN 4115, focusing on the role of the banking system, the Federal Reserve System, and supply-side policies. Topics in microeconomics include the role of a market pricing system, supply and demand, the costs of production, profits, and the supply decision. *Prereq.* ECN 4115 or *equiv.*

ECN 4117 Economic Principles and Problems 3 (3 q.h.)

Continuation of ECN 4116, focusing on markets and the allocation of resources. Topics include competitive markets, monopoly, oligopoly, factor markets, and income distribution. Economic principles are applied to selected problem areas, including poverty, pollution, energy, international trade, and the balance of payments. *Prereq.* ECN 4116 or *equiv.*

ECN 4118 Economics (Intensive) (9 q.h.)
Same as ECN 4115, ECN 4116, and ECN 4117.

ECN 4130 Medical Economics (3 q.h.)

Topics include healthcare trends in the United States; causes for increases in medical care costs; supply and training of health care personnel; the nation's need for physicians, nurses, pharmacists, and other allied health personnel; the quality of medical care; economics of health insurance plans; and consumer demand for healthcare, medical facilities, and professional and semiprofessional personnel.

ECN 4137 History of Economic Thought (3 q.h.)

Development of economic thought, including Mercantilism as the first economic doctrine; analysis of the older, classical school with its later refinements (Modern Marginalism) and its important critics (socialists, Marxists); and Keynesian and modern developments.

ECN 4140 Economics of Crime (3 q.h.)
Theoretical and empirical analyses of the economic causes of criminal behavior. The social costs of crime, its prevention, and techniques for designing optimum law enforcement policies.

ECN 4215 Macroeconomic Theory 1 (3 q.h.)
A discussion of conceptual and empirical problems of creating and using national accounts, price index problems, conceptual and empirical evaluation of consumption and investment functions and their policy implications, multiplier and accelerator models, and recent cyclical fluctuations. Analyzes theories of inflation, unemployment, and growth in light of recent economic history. *Prereq. ECN 4117 or equiv.*

ECN 4216 Microeconomic Theory 1 (3 q.h.)
Examines supply and demand analysis, various elasticity concepts and applications, theories of demand and production, and derivation of cost curves. Analyzes pricing and output behavior in several market structures. Analyzes the pricing of resources, general equilibrium and economic efficiency, and a variety of topics in microeconomics such as externalities and public goods. *Prereq. ECN 4117 or equiv.*

ECN 4217 Macroeconomic Theory 2 (3 q.h.)
A continuation of ECN 4215.

ECN 4218 Microeconomic Theory 2 (3 q.h.)
A continuation of ECN 4216.

ECN 4219 Macroeconomic Theory Intensive (6 q.h.)
Same as ECN 4215 and ECN 4217. *Prereq. ECN 4117 or equiv.*

ECN 4220 Microeconomic Theory Intensive (6 q.h.)
Same as ECN 4216 and ECN 4218. *Prereq. ECN 4117 or equiv.*

ECN 4221 Selected Topics in Economics (3 q.h.)
Studies in a variety of macro- and micro-economic issues. Because topics change from quarter to quarter, students may take this course more than once, provided they focus on a different topic each time.

ECN 4250 Statistics 1 (3 q.h.)
Introduction to the collection and organization of data, including the measurement, presentation, and uses of elementary set theory; measures of central tendency and variability; basic probability; and probability distributions. *Prereq. MTH 4111.*

ECN 4251 Statistics 2 (3 q.h.)
Sampling and basic estimation techniques, "t" distribution, testing of statistical hypotheses, and analysis of variances. *Prereq. ECN 4250 or equiv.*

ECN 4252 Statistics 3 (3 q.h.)
Methods of econometric estimation and forecasting, including linear regression analysis, correlation analysis, time series analysis, and index numbers. *Prereq. ECN 4251 or equiv.*

ECN 4254 Statistics Intensive B (6 q.h.)
Same as ECN 4250 and ECN 4251. *Prereq. MTH 4111.*

ECN 4310 Labor Economics (3 q.h.)
Economic analysis of the labor market, including the labor force, the demand for labor, and the institutions and policies dealing with them. Examines employment, unemployment, wage determination, and the development and efficient use of labor resources as well as collective bargaining issues and their economic consequences. *Prereq. ECN 4117 or equiv.*

ECN 4313 Women in the Labor Force (3 q.h.)
Economic analysis of women's labor market position in the context of the changing economic structure and labor market institutions. Analysis of female labor force participation differences; male-female differentials in earnings and unemployment; occupational concentration, occupational segregation; theories and evidence of sex discrimination; and new opportunities for women.

ECN 4315 Income Inequality and Discrimination (3 q.h.)
Analysis of the composition of impoverished groups and recent trends. Examines the labor market, demographic and institutional forces contributing to poverty, the role of education, the economics of race and sex discrimination, the public welfare system, and proposed reforms.

ECN 4321 Urban Economic Problems and Policies (3 q.h.)
Economic analysis of selected urban problems such as housing, poverty, transportation, education, health, crime, and the urban environment. Includes discussion of public policies relating to such problems. *Prereq. ECN 4117.*

ECN 4323 Environmental Economics (3 q.h.)
Economic analysis of air, water, thermal, and noise pollution. The utilization of urban space and other urban resources; identification of possible economic effects of urban environment, such as crime, delinquency, immobility, and congestion.

ECN 4330 Economic Growth and Development (3 q.h.)
Prospects for economic growth and development in impoverished nations as indicated by economic analysis and historical experience. Includes the social, cultural, and institutional determinants of growth and an analysis of agriculture and development.

ECN 4331 American Economic History (3 q.h.)
Economic development of the United States, with emphasis on the post-Civil War period and the effect of certain European developments.

ECN 4333 European Economic Development (3 q.h.)
Historical survey of European economic development from overseas expansion to the dissolution of empires and the Common Market. Examines the environmental impact of industrialism and the implications of living in a technological society.

ECN 4334 Comparative Economic Systems (3 q.h.)
Competing types of theoretical economic systems; analysis of the organization and operation of currently existing types of communist, socialist, and capitalist economies; and comparison and evaluation of the economic behavior and performance of different economic systems.

ECN 4335 International Trade (3 q.h.)
Economics of international trade, including tariffs, use of resources, and balance-of-payment mechanisms. *Prereq. ECN 4117 or equiv.*

ECN 4336 International Monetary Economics (3 q.h.)
International commercial policy, financial organizations, and recent problems. *Prereq. ECN 4335 or equiv.*

ECN 4337 International Economics (Intensive) (6 q.h.)
Same as ECN 4335 and ECN 4336. *Prereq. ECN 4117 or equiv.*

ECN 4341 Money and Banking Intensive (6 q.h.)
Same as ECN 4342 and 4343. *Prereq. ECN 4117 or equiv.*

ECN 4342 Money and Banking 1 (3 q.h.)
Introduction to money and credit, commercial banking structure, and money creation as well as the problems and policies of centralized banking in the United States. *Prereq. ECN 4117 or equiv.*

ECN 4343 Money and Banking 2 (3 q.h.)
Topics include theory of money, prices, and monetary policy; interest theory; debt management; and international monetary problems and analysis. *Prereq. ECN 4342 or equiv.*

ECN 4344 Government Finance (3 q.h.)
Topics include fiscal functions, institutions, and politics; growth of the public sector; expenditure planning in theory and practice; cost-benefit analysis; principles of taxation and tax incidence; major taxes at federal, state, and local levels; fiscal policy for high employment, price stability and growth; and current fiscal problems, such as tax reform, urban fiscal problems, fiscal federalism, and income maintenance programs. *Prereq. ECN 4117 or equiv.*

ECN 4345 Business Cycles and Inflation (3 q.h.)
Considers the theories of business cycles and inflation and an empirical application of these theories to current business cycles, inflation, and stagflation problems. *Prereq. ECN 4117 and ECN 4215.*

ECN 4350 Introduction to Econometrics (3 q.h.)
Methods of econometric estimation and forecasting, including various statistical techniques. Students are given the opportunity to construct their own models and

use computer facilities for estimation and forecasting. *Prereq. ECN 4117 and ECN 4252.*

ECN 4351 Problems in Economic Research (3 q.h.)
Research methods used by practicing economists. Topics include typical problems from areas of applied economics, such as choices of modeling framework, development of static and dynamic adaptive policy models, problems of data collection, review of estimation techniques, and interpretation of results. *Prereq. ECN 4117 and ECN 4252.*

ECN 4353 Introduction to Mathematical Economics (3 q.h.)
Introduction to mathematical analysis, with an in-depth study of theory of distribution. *Prereq. ECN 4117 or equiv.*

ECN 4360 Managerial Economics (3 q.h.)
Theory of demand, price, and output as applied to business firms and capital budgeting. *Prereq. ECN 4117 or equiv.*

ECN 4363 Government and Business 1 (3 q.h.)
The rationale for government involvement in markets, the role of government in national economic affairs, and the relationship between government and business, including the application of antitrust laws to business.

ECN 4364 Government and Business 2 (3 q.h.)
The government's role in economic activities. The relationships between the government and industry, labor, agriculture, public utilities, and consumers. The changing role of government from laissez-faire policy to direct intervention in the economy. Wage and price controls, environment and anti-pollution policies, consumer protection, conglomerate mergers, and regulation of industries.

ECN 4384 The Economics of the Stock Market (3 q.h.)
Topics include the organization of the stock exchange, the highly speculative nature of the stock exchanges, the functions of the exchanges, capital gains, equity, dividends, stock options, splits, puts and calls, the crash of 1929, the crash of 1987, the Great Depression, controls on the stock market, and the Federal Reserve Board.

ECN 4492 Economic Policy Seminar (3 q.h.)
Most advanced course for senior economic majors, with emphasis on independent study and contemporary issues. *Prereq. ECN 4215 and ECN 4216.*

ECN 4495 Honors Program 1 (4 q.h.)
Opportunity to undertake an in-depth research study project. See page 219 for details. *Prereq. 96 q.h., 3.5 q.p.a.*

ECN 4496 Honors Program 2 (4 q.h.)
See ECN 4495.

ECN 4497 Honors Program 3 (4 q.h.)
See ECN 4495.

ECN 4500 Advanced Tutorial 1 (3 q.h.)
Opportunity to take an upper-level course independently. See page 219 for details. *Prereq. 87 q.h.*

ECN 4501 Advanced Tutorial 2 (3 q.h.)
See ECN 4500.

ECN 4510 Independent Study 1 (3 q.h.)
Opportunity to undertake special research. See page 219 for details. *Prereq. 96 q.h., 3.0 q.p.a.*

ECN 4511 Independent Study 2 (3 q.h.)
See ECN 4510.

ECN 4512 Independent Study 3 (3 q.h.)
See ECN 4510.

ECN 4601 Economics 1 (4 q.h.)
Development of macroeconomic analysis, review of national income concepts, national income determination fluctuation and growth, the role of the banking system and the Federal Reserve system, government expenditures and taxation, international trade, and balance of international payments. *For SGS students only.*

EDUCATION

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CRS 4200 Introduction to Special Education (3 q.h.)
Surveys the characteristics and the social, emotional, and educational adjustment of children and youth with special needs. Examines the effects of the disability and of the individual's and society's attitudes toward the disability. Reviews current legislation.

ED 4003 Integrated Language Skills I (4 q.h.)

Integrated Language Skills I strives to improve reading and related study and language skills. The course emphasizes reading skills such as vocabulary, comprehension, interpretation, and critical reading as well as study skills such as previewing, finding main ideas and details, outlining, summarizing, classifying information, and locating signal words. It also focuses on strengthening study habits, time management, basic computer skills, memory and listening techniques, note taking and exam taking strategies, and, in addition, it examines the correlation between reading and writing within the course and across the disciplines. Assignments from both fiction and non-fiction address the primary theme of the course: forming an identity. *For SGS students only.*

ED 4004 Integrated Language Skills II (4 q.h.)

Integrated Language Skills II continues to strengthen reading and study skills. In addition, the course explores techniques for researching, organizing and writing term papers using critical reading and thinking skills as they relate to the learning process. Another focus of the course is to help students develop insight into their strengths and interests regarding a choice of major and career. Reading and research assignments emphasize the primary theme of the course: developing a social conscience. *For SGS students only. Prereq. ED 4003.*

ED 4005 Integrated Language Skills Seminar (1 q.h.)

The purpose of the Integrated Language Skills Seminar is to integrate critical reading, thinking and study skills with other courses in order to provide support for students with differing abilities. Using literature, films, discussions, and related assignments, the seminar explores and develops themes relating to world events. In addition, the seminar assists students in preparing the necessary documents and information to obtain sophomore status and a co-op assignment. *For SGS students only. Prereq. ED 4004.*

ED 4050 College Reading and Study Skills (3 q.h.)

Reading comprehension, text and lecture note-taking skills, and examination-taking skills. Students practice with excerpts from texts and taped lectures and apply

the skills to materials in other courses. Intended for students who are beginning college work and wish to develop reading and study skills. *(Not for students who have already taken the Basic Day College courses Reading/Study Skills 1 or Integrated Language Skills Development 1.)*

EMERGENCY MEDICAL SERVICES

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EMS 4107 EMT-Basic (9 q.h.)

The course covers evaluation and management of the following medical emergencies: cardiopulmonary arrest, severe bleeding and shock; fractured bones; care for heart attack, stroke, burn and poisoning victims; extrication and removal of victims from crashed vehicles and collapsed buildings; emergency childbirth and various other medical, emotional, and environmental emergencies. *This course meets the U.S.D.O.T. Revised EMT/Basic National Standard Curriculum. Under the new EMT course requirements, all students must pass CPR by the third class in order to continue in the program.*

EMT-Basic includes 9 hours of class weekly for 12 weeks. Four (4) all-day Saturday exercises (combination of indoor and outdoor) that include practical demonstration of ambulance and/or emergency vehicles and techniques.

EMT Basic Skills: CPR (cardiopulmonary resuscitation), obstructed airway maneuvers, control of bleeding, taking vital signs (pulse/respiration/blood pressure), patient assessment, bandaging and splinting, emergency carries and lifting and moving devices (ambulance and orthopedic stretchers, etc.), triage at multi-victim accident.

EMS 4117 Emergency Medical Services 1 (4 cl., 6 lab., 6 q.h.)

Introduction to the Paramedic Program: role and responsibilities of Paramedics, medical terminology, human systems, patient assessment, blood, fluids and electrolytes, shock and shock management. The laboratory component provides the opportunity to correlate didactic knowledge while developing psychomotor skills. *To receive credit for this course, you must also register for BIO 4215/BIO 4217.*

EMS 4118 Emergency Medical Services 2 (4 cl., 6 lab., 6 q.h.)

Continuation of Paramedic Program: respiratory system, cardiovascular system, pathophysiology and emergency management, electrocardiograms, life-threatening dysrhythmias. The laboratory component provides the opportunity to correlate didactic knowledge while developing psychomotor skills. *Prereq. EMS 4117 or equiv.*

EMS 4119 Emergency Medical Services 3 (4 cl., 6 lab., 6 q.h.)

Continuation of Paramedic Program: central nervous system, soft tissue injuries, musculoskeletal system, medical emergencies, acute abdomen, genitourinary system, geriatric emergencies. The laboratory component provides the opportunity to correlate didactic knowledge while developing psychomotor skills. *To receive credit for this course, you must also register for BIO 4216/BIO 4218. Prereq. EMS 4118 or equiv.*

EMS 4120 Emergency Medical Services 4 (4 cl., 6 lab., 6 q.h.)

Continuation of Paramedic Program: obstetric/gynecologic emergencies, including emergency childbirth, neonatal and pediatric patients, emotionally disturbed patients, stress management, gaining access and extrication, multiple casualty incidents, emergency communications. The laboratory component provides the opportunity to correlate didactic knowledge while developing psychomotor skills. *Prereq. EMS 4119 or equiv.*

EMS 4121 Emergency Medical Services 5 (27.5 lab., 11 q.h.)

Clinical Practicum I of the Paramedic Program: application of theoretical knowledge and psychomotor skills in hospital unit rotations.* *Prereq. EMS 4120 or equiv.*

EMS 4122 Emergency Medical Services 6 (27.5 lab., 11 q.h.)

Clinical Practicum II of the Paramedic Program.* *Prereq. EMS 4121 or equiv.*

EMS 4123 Emergency Medical Services 7 (100 lab., 3 q.h.)

Field internship component of the Paramedic Program: opportunity to practice and develop all necessary psychomotor skills on an urban advanced life support system.* *Prereq. EMS 4122 or equiv.*

**Requires Liability Insurance coverage.*

ENGLISH

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ENG 4007 Advanced English for International Students (3 q.h.)

Advanced course in English as a second language. Practice in special forms of writing to improve clarity, syntax, and organization. (*May not be used to satisfy ENG elective requirements for English BA/BS degrees.*) *Prereq.* instructor's permission.

ENG 4011 Elements of Writing (3 q.h.)

Review of the structural patterns of current English. Practice in writing sentences, paragraphs, and short papers. (*May not be used to satisfy ENG elective requirements for English BA/BS degrees.*)

ENG 4012 Elements of Grammar (3 q.h.)

A study of grammar and the way the English language works. Helps students improve their writing through an understanding of the parts of speech, the mechanics of punctuation, and the vagaries of spelling. Exercises in solving problems of number, case, tense, degree, and usage. (*May not be used to satisfy ENG elective requirements for English BA/BS degrees.*)

ENG 4013 Introduction to Writing 1 (formerly Fundamentals of English 1) (4 q.h.)

Introduces students to the components of the writing process: generating and developing ideas, organizing and structuring essays, considering audience, drafting and revision, and controlling the conventions of standard edited written English. In a workshop setting, students learn to read short texts of some complexity (which in turn serve as the occasion for their own writing) and to write expository prose that makes use of a variety of rhetorical strategies and research methods. *For SGS students only.*

ENG 4014 Introductory Writing 2 (formerly Fundamentals of English 2) (4 q.h.)

Continues the work of ENG 4013. *For SGS students only. Prereq.* ENG 4013.

ENG 4100 Critical Writing 1 (4 q.h.)

Detailed examination of the principles and methods of rhetoric, especially narration, description, and exposition. Includes frequent practice in writing paragraphs

and themes in those modes. *A writing proficiency test is given at the first class meeting.*

ENG 4101 Critical Writing 2 (4 q.h.)

Continued examination of the principles and methods of rhetoric, especially persuasion, through the study of poems, stories, and plays and with practice in writing critically about them. *Prereq.* ENG 4100.

ENG 4102 Critical Writing Workshop (2 q.h.)

Workshop develops research skills and writing techniques used in writing a documented paper and reviews principles and methods of rhetoric in preparation for the competency examination. *Prereq.* ENG 4101.

ENG 4120 English Literature: Faith and Humanism (3 q.h.)

English literature from its beginnings to 1700, including works by Chaucer, Spenser, Shakespeare, Donne, and Milton.

ENG 4121 English Literature: Reason and Romanticism (3 q.h.)

English literature from the Neoclassical period to the Romantic age, including works by Pope, Swift, Johnson, Blake, Wordsworth, and Keats.

ENG 4122 English Literature: Victorians and Moderns (3 q.h.)

English literature from the Victorian Age through the twentieth century, including works by Browning, Arnold, Hardy, Yeats, and Eliot.

ENG 4123 Early American Literature: Faith, Reason, and Nature (3 q.h.)

American literature from its beginnings through the nineteenth-century Transcendentalists, including works by Bradstreet, Taylor, Edwards, Franklin, Emerson, and Thoreau.

ENG 4124 American Romanticism and American Realists (3 q.h.)

The fiction and poetry of nineteenth-century America, including works by Hawthorne, Melville, Whitman, Dickinson, Twain, James, Crane, and Dreiser.

ENG 4125 American Literature: The Modern Temper (3 q.h.)

The prose and poetry of twentieth-century America, including works by Eliot, Stevens, Fitzgerald, Hemingway, Wright, and Plath.

ENG 4131 God, Gods, and Heroes: The Literature of the Ancient and Medieval Worlds (3 q.h.)

Literary traditions of the ancient world and the Middle Ages in the works of such writers as Homer, Aeschylus, Sophocles, Euripides, Aristophanes, Virgil, and Dante, as well as in the art of biblical narrative.

ENG 4132 Man, Reason, and Imagination: Literature from the Renaissance to the Romantic Age (3 q.h.)

Literary traditions of the Renaissance, Neoclassicism, and Romanticism in the work of such writers as Machiavelli, Moliere, Racine, Voltaire, and Goethe.

ENG 4133 Order and Disorder: Literature of the Moderns (3 q.h.)

Literary traditions of Realism and Modernism in the work of such writers as Dostoevsky, Ibsen, Mann, Kafka, and Sartre.

ENG 4200 Poetry (formerly ENG 4114) (3 q.h.)

An introductory course in the techniques, forms, structures, and styles of both traditional and contemporary poetry in English. Indispensable to any upper-level courses that deal with poets as major figures, this basic course should leave students with the essential terms of poetic analysis and with an appreciation of the challenges that poets set for both themselves and their readers. (*Not open to students who have taken ENG 4114.*)

ENG 4201 Drama (formerly ENG 4116) (3 q.h.)

Examines the techniques, forms, structures, and styles of traditional and contemporary plays by a close reading of selected texts, the study of critical terms, and practice in a variety of critical approaches; and provides valuable preparation for upper-level courses in drama. (*Not open to students who have taken ENG 4116.*)

ENG 4202 Fiction (formerly ENG 4117) (3 q.h.)

Explores the techniques, forms, structures, and styles of short stories and novels by a close reading of selected texts, the study of critical terms, and practice in a variety of critical approaches; and provides valuable preparation for upper-level courses in fiction. (*Not open to students who have taken ENG 4117.*)

ENG 4213 Detective Fiction (3 q.h.)
Elements of intrigue, logic, and thought converge in this study of the whodunit. Students sample a wide range of detective fiction to explore the questions of innocence and guilt, action and responsibility, power and authority, and victim and victimizer and to see connections between this popular form of literature and its classical antecedents.

ENG 4221 Images of Women in Literature (3 q.h.)
Images of women and their underlying archetypes in imaginative literature. Includes such writers as Homer, Austen, Ibsen, and Lawrence.

ENG 4222 American Women Writers (3 q.h.)
Representative nineteenth- and twentieth-century American women writers, including such poets as Dickinson and Plath and such novelists as Chopin and Cather.

ENG 4223 British Women Writers (3 q.h.)
Important historical and thematic connections in the work of British women writers of the last two hundred years, including the novels of Austen, Eliot, Woolf, and Lessing.

ENG 4240 Fiction and the Movies (3 q.h.)
Reading and seeing: an examination of the success (and failure) of turning famous novels and stories into movies. Analysis of book-film case studies such as *The Postman Always Rings Twice*, *Howard's End*, *Sophie's Choice*, *The Unbearable Lightness of Being*, *The Silence of the Lambs*, and *The Last Picture Show*. Includes elementary film theory and criticism.

ENG 4241 Topics in Film (3 q.h.)
Explores a chosen theme in literature and in film, drawing upon important cultural, political, or psychological issues of our time. Focuses on a different topic each quarter, using films inspired by both classic and contemporary novels, stories, and plays—for example, *Literary Heroines Go Hollywood*, *Paranoia: From Hitchcock to Oliver Stone*—so that students may take this course more than once.

ENG 4242 Screenwriting (3 q.h.)
An introduction to the craft of constructing a feature-length shooting script for film or television. Emphasis is on the close defining of plot ideas and the “sound” of

the characters, on the structuring of effective short scenes and longer sequences, and on learning some of the cinematic techniques and trade secrets peculiar to the art of film writing. Video clips will be analyzed throughout the course.

ENG 4243 Screenwriting 2 (formerly Screenwriting Workshop) (3 q.h.)
An advanced course, intended primarily for students wishing to complete or polish scripts begun in ENG 4242. May also be taken by anyone who already knows the fundamentals of the screenwriting format and now wishes to begin a new project or finish one started elsewhere. *Prereq.* ENG 4242 or instructor's permission.

ENG 4349 Expository and Persuasive Writing 1 (3 q.h.)
An advanced composition course designed to help students perfect already proficient writing skills. From first drafts to revisions, weekly writing assignments concentrate on effective means to achieve added focus, clarity, development, and organization in a variety of expository prose forms. *Prereq.* ENG 4102 or equiv.

ENG 4350 Expository and Persuasive Writing 2 (3 q.h.)
Development of precise and persuasive writing patterns through experiments with various rhetorical strategies. Students write extensively on topics of current interest to gain fluency and to learn how to target their writing toward different audiences. *Prereq.* ENG 4349 or equiv.

ENG 4352 Expository Writing Workshop (3 q.h.)
Designed as a workshop in special writing projects, this course enables students to investigate subjects of particular and informed interest. Through assignments in research methods and documentation and through work on the organizational problems of longer papers, students prepare manuscripts worthy of publication. *Prereq.* ENG 4350 or equiv.

ENG 4353 Expository and Persuasive Writing Intensive (6 q.h.)
Same as ENG 4349 and ENG 4350. *Prereq.* ENG 4102 or equiv.

ENG 4356 Creative Writing (3 q.h.)
An opportunity to write and develop a variety of forms, including experiments in journals and short stories, plays, and poems. Features in-class discussion of students' work and a final project of choice.

ENG 4357 Creative Writing: Poetry (3 q.h.)
Practice in writing different forms of poetry for beginning poets. Includes discussion and criticism of student work and selected texts.

ENG 4358 Creative Writing: Fiction (3 q.h.)
Practice in writing various types of short stories for beginning writers of short fiction. Includes discussion and criticism of student work and selected texts.

ENG 4359 Creative Writing Workshop (3 q.h.)
Discussion and criticism of student manuscripts for practicing writers.

ENG 4361 Creative Writing Seminar (3 q.h.)
A master class designed for those students who have taken the basic creative writing courses (ENG 4356, ENG 4357 or ENG 4358, and ENG 4359). Students are expected to be committed writers and comfortable with critical appraisals and exchanges. Open to both fiction writers and poets (with the instructor's permission).

ENG 4363 Writing for Publication (3 q.h.)
Workshop for writers venturing into the marketplace. Provides a working knowledge of the publishing industry and useful practice in preparing and editing manuscripts for publication. Includes the development of effective strategies for composing query letters, synopses, outlines, and sample manuscripts.

ENG 4364 Creative Writing: Autobiography (3 q.h.)
Concentrates on the literary communication of emotional truths harbored in factual material. Uses memories, dreams, journals, and a variety of exercises as approaches to writing. Readings include published memoirs and essays about memoir writing. *Prereq.* ENG 4100 strongly advised.

ENG 4380 Writing for the Professions 1 (3 q.h.)
Introduction to the vocabulary and philosophy of business communications. Practice in planning, writing, and analyzing effective business letters and memoranda. *A writing proficiency test is given at the first class meeting.*

ENG 4381 Writing for the Professions 2 (3 q.h.)

Methods and principles of research and documentation of semitechnical analyses and business reports. Practice in organizing and writing complex forms of business communications. *Prereq.* ENG 4380 or equiv.

ENG 4383 Writing for the Professions Intensive (6 q.h.)

Same as ENG 4380 and ENG 4381. *A writing proficiency test is given at the first class meeting.*

ENG 4384 Advanced Managerial Communication (3 q.h.)

Designed for business students seeking writing skills for graduate school or undergraduate courses that require written analysis of case studies. In addition to writing strategies, critical thinking and problem solving will be taught. *Prereq.* ENG 4381 or 4383 or instructor's permission.

ENG 4440 Literary Theory and Criticism (formerly ENG 4115) (3 q.h.)

Introduces traditional and modern literary theory and criticism and may include such historical figures as Plato and Aristotle, Sidney and Wordsworth, and such contemporary approaches as Marxist, feminist, psychoanalytic, and post-structuralist.

ENG 4500 The English Language (3 q.h.)

Development of modern English from its pre-Anglo-Saxon beginnings. Effects of Roman, Scandinavian, and Norman invasions; dialect geography; evolutionary change; and word formation and borrowing.

ENG 4501 Linguistics (3 q.h.)

Studies the nature of language as a function of sentence structure (syntax), meaning (semantics), word forms (morphology), and speech sounds (phonology), as well as issues related to it, such as the Black English/Standard English debate, the nature/nurture controversy, and the linguistics of gender argument.

ENG 4600 Topics in Literature (3 q.h.)

Examines in depth a subject or theme in literature as various as Shakespeare's Women at one time and The American Dream at another. Because topics change from quarter to quarter and campus to

campus, students may take this course more than once, provided, of course, it is a different topic each time.

ENG 4604 Major Figure in Literature (3 q.h.)

Examines in detail and depth the work of a major writer of poetry, fiction, or drama, such as Whitman, Tolstoy, Woolf, or Beckett. Students may take this course more than once, provided they focus on a different figure each time.

ENG 4609 American Poetry (3 q.h.)

Surveys American poetry from the beginnings to the present. Includes such poets as Poe, Whitman, Dickinson, Frost, Stevens, Cummings, Hughes, Brooks, Ginsberg, and Rich.

ENG 4610 The American Short Story (3 q.h.)

Development of the American short story from its nineteenth-century origins to its present forms. Includes such writers as Poe, Hawthorne, James, Hemingway, Roth, and Updike.

ENG 4611 The American Novel (3 q.h.)

Development of the novel in America and its characteristic qualities. Includes such writers as Cooper, Melville, James, Wharton, Faulkner, and Ellison.

ENG 4640 Twentieth Century English Literature (3 q.h.)

An examination of some of the major writers in England and the movements, such as Realism or Post Modernism, that marked their fiction and poetry. Authors studied may include William Butler Yeats, James Joyce, Virginia Woolf, Dylan Thomas, Muriel Spark, Anthony Burgess, and Iris Murdoch.

ENG 4641 Twentieth Century American Literature (3 q.h.)

An examination of some of the major American writers of the twentieth century and the movements and themes that marked their fiction and poetry. Authors studied may include Ezra Pound, T.S. Eliot, Robert Frost, William Carlos Williams, F. Scott Fitzgerald, Ernest Hemingway, Flannery O'Connor, Allen Ginsberg, and Alice Walker.

ENG 4642 The English Novel (3 q.h.)

Development of the English novel from its beginnings in the eighteenth century through its concern with manners and morals in the nineteenth century to the experimentation of the twentieth cen-

tury. Includes such writers as Fielding, Richardson, Austen, Dickens, Eliot, and Woolf.

ENG 4643 English Drama (3 q.h.)

Surveys representative English drama, excluding Shakespeare, from the beginnings to the modern times, from *Everyman*, for example, to *Waiting for Godot*, tracing the changing role of theaters and audiences, dramatic conventions, and acting styles.

ENG 4649 European and English Short Story (3 q.h.)

Development of the short story in Europe and England in both the nineteenth and twentieth centuries. Includes such writers as de Maupassant, Balzac, Mann, Camus, Kipling, Lawrence, Greene, and Böll.

ENG 4650 Modern Bestsellers (3 q.h.)

The fascinating world of modern bestsellers, a world of romance and adventure, of high living and sinister intrigue.

ENG 4651 The Continental Novel (3 q.h.)

Development of the European novel through its various forms and themes, from Balzac and Tolstoy to Proust and Mann.

ENG 4655 Contemporary Fiction (3 q.h.)

An examination of some of the most influential fiction of the last quarter century. Authors will vary, and students may expect to study writing by both established and emerging writers. Authors such as Alice Walker, Russell Banks, Jay McInerney, Toni Morrison, and Milan Kundera will be studied.

ENG 4658 Introduction to Shakespeare (3 q.h.)

Detailed examination of representative plays from Shakespeare's early, middle, and late periods in order to illustrate his development as a dramatist and define his principal themes in such plays as *A Midsummer Night's Dream*, *Romeo and Juliet*, and *King Lear*.

ENG 4659 Shakespeare: The Major Tragedies and Comedies (3 q.h.)

Study of examples of Shakespeare's mature dramatic art, such as *As You Like It*, *Much Ado About Nothing*, *Hamlet*, *Macbeth*, and *Antony and Cleopatra*.

ENG 4660 Shakespeare on Film (3 q.h.)
A survey of the variety of ways Shakespeare has been adapted to the screen, featuring classic versions of the great tragedies by Orson Welles, Laurence Olivier, and Roman Polanski, as well as Kenneth Branagh's *Henry V* and Burton and Taylor in *The Taming of the Shrew*.

ENG 4802 Honors Program 1 (4 q.h.)
Opportunity to undertake an in-depth research study project. See page 219 for details. *Prereq.* 96 q.h., 3.5 q.p.a.

ENG 4803 Honors Program 2 (4 q.h.)
See ENG 4802.

ENG 4804 Honors Program 3 (4 q.h.)
See ENG 4802.

ENG 4815 Advanced Tutorial 1 (3 q.h.)
Opportunity to take an upper-level course independently. See page 219 for details. *Prereq.* 87 q.h.

ENG 4816 Advanced Tutorial 2 (3 q.h.)
See ENG 4815.

ENG 4820 Independent Study 1 (3 q.h.)
Opportunity to undertake special research. See page 219 for details. *Prereq.* 96 q.h., 3.0 q.p.a.

ENG 4821 Independent Study 2 (3 q.h.)
See ENG 4820.

ENG 4822 Independent Study 3 (3 q.h.)
See ENG 4820.

EARTH SCIENCES

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ESC 4103 Introduction to the Earth Sciences: The Solid Earth (3 q.h.)
A general introduction to the processes that affect the earth's surface and interior: the effects of rivers and glaciers on the earth's surface; the influence of wind, waves, currents, and storms on coasts; plate tectonics and the origin of volcanoes, mountain belts, and earthquakes.

ESC 4104 Introduction to the Earth Sciences: Earth's Oceans and Atmosphere (3 q.h.)
This course is a general introduction to the earth's oceans and atmosphere. The course explores how the sea is affected by the rotation of the earth, by sunlight, by the gravity of the moon and sun, by glaciers and rivers, and by the surrounding

continents. The earth's weather systems are influenced by many of the same factors, and the course uses this background to explain the broad patterns of winds and storms on our planet.

ESC 4105 Introduction to the Earth Sciences: Earth and the Planets (3 q.h.)
This course considers current ideas on the development of the solar system. It describes how the earth and moon evolved as planetary bodies and contrasts their development with that of the other planets and moons in terms of size, distance from the sun, and bulk composition. Telescopic studies of the sun, moon, and planets; studies of rock samples returned from the moon and of meteorites along with data obtained by planetary lander and fly-by missions will be considered.

ESC 4107 Solid Earth, Oceans and Atmosphere (6 q.h.)
Same as ESC 4103 and ESC 4104.

ESC 4109 Introduction to the Earth Sciences (Intensive) (9 q.h.)
Same as ESC 4103, ESC 4104, and ESC 4105.

ESC 4111 Geology of the Boston Area (3 q.h.)
Designed to give students without prior field experience a working knowledge of the bedrock and glacial development of the Boston metropolitan area. There will be six regular class meetings of standard length and two all-day Saturday field trips.

ESC 4203 Gemology for Consumers (3 q.h.)
This introductory course discusses basic principles of gemology and it also provides an overview of the gem industry and practices to ensure consumer awareness. Topics include geology and geography of gem deposits, aspects of crystal chemistry and crystallography, gem classification, physical properties, behavior of light and color, inclusions, special optical effects (e.g., star rubies, color-change sapphires, tiger's-eye quartz), gem cutting, testing methods, investment considerations and caveats, and metals used in jewelry. This course covers all major and popular natural gemstones as well as synthetic or lab-created gems, simulants, assembled stones, and enhanced gems.

ESC 4214 New England Coastal Ecology (formerly Biology of Coastal Environments) (3 q.h.)
Provides hydrological, biological, and ecological descriptions of coastal zone habitats, which are important economic resources whose use is governed by extensive legislation. Explores the physical and biological components of major coastal zone habitats: bogs, dunes, salt marshes, mud flats, sea grass beds, intertidal, subtidal, estuarine, continental shelf. Specific interactions between these habitats (nutrient/energy flow, fisheries nursery grounds) and processes that influence them (beach erosion, dredging, silting) are also considered. Key species and characteristics of each habitat, their importance as natural resources, the impact of environmental engineering, and mitigation techniques are also discussed. *Prereq.* Knowledge of general biology and general chemistry.

ESC 4220 Wetlands (3 q.h.)
The course explores the hydrology and biogeochemistry of wetlands, describes the attributes of specific wetlands types, and examines current wetland protection and management strategies.

ESC 4221 Environmental Geophysics (3 q.h.)
Intended for both students and practicing professionals, this course will show how geophysical techniques can help solve a wide range of environmental and engineering problems. After a brief historical survey, the most commonly used methods are considered in detail, including seismic, gravity, magnetics, resistivity, electromagnetics, ground penetrating radar, and borehole methods. Emphasis on practical applications, and numerous case studies will be used as examples. Students will have the opportunity to design and plan geophysical studies based on actual and theoretical situations.

ESC 4233 The Earth's Atmosphere (3 q.h.)
An introduction to the science of meteorology, in more detail than the treatment in ESC 4104. This course describes how the sun's heat, the earth's gravity, and the earth's rotation combine to cause the large-scale patterns of winds on our planet. After describing why winds generally move east-to-west in some latitudes and west-

to-east in others, the formation and motion of smaller air masses and weather fronts are considered.

ESC 4235 Weather Forecasting and Climate Change (3 q.h.)

This course begins by discussing the kinds of data that meteorologists use to make short-term weather forecasts; how the data are obtained and summarized on weather maps; and how the maps and computers assist in forecasting the weather. The second part of the course steps backward in time to examine the causes of the earth's long-term climate fluctuations, on a scale of tens of thousands of years, using the Milankovic hypothesis (changes in the earth's orbit, etc.). Implications of the Milankovic model, plus possible warming due to the Greenhouse Effect, are used to discuss possible future changes in the earth's climate. (*ESC 4233 useful but not required.*)

ESC 4239 Observational Astronomy (3 q.h.)

Introduction to the planets, stars, and constellations visible to the naked eye, through lectures and outside viewing sessions. Emphasizes stars and constellations easily seen from mid-northern latitudes.

ESC 4243 Stars (3 q.h.)

This course traces the events that occur throughout the lifetimes of various kinds of stars. Topics include the sun as a model star; the differences that are observed in mass, temperature, and types of energy emitted among various types of stars; formation of stars; creation of chemical elements within stars and dispersal of these elements into surrounding space during super-novas; and processes that stars undergo in their juvenile stage, through middle age, to death. *ESC 4239 recommended.*

ESC 4250 Conservation and the Nation (3 q.h.)

This course provides an overview of the ways in which people interact with the environment. Topics covered include air and water pollution; waste disposal; farming and soil conservation; and general principles of ecology, emphasizing human impact on the environment and how it has changed in North America over the past few hundred years.

ESC 4251 Conservation and the Community (3 q.h.)

Study of conservation problems and land-use practices at the local level. Includes an in-depth study of urban development and its impact on the environment. *Prereq. ESC 4250 recommended.*

ESC 4252 Conservation Management (3 q.h.)

This course reviews the structure of local governments and the role played by government in regulating people's impact on the environment. Topics include land use planning and zoning, conservation commissions, wetlands protection, ground-water and drinking water protection, solid waste and hazardous waste management, and sources of information or assistance for community efforts. *Prereq. ESC 4251 is recommended.*

ESC 4410 Disasters, Nature's Violence and the Human Threat (3 q.h.)

For the student who wishes to acquire an understanding of the causes, the nature, and the geographical occurrence of natural and human-induced disasters. An introductory course designed to probe a wide variety of potential hazards and actual disasters to educate the student to the impact and consequence of such events. The course is designed to serve students with an interest in geography, the earth sciences, and the environment, and to assist students in obtaining a solid, but not excessively technical, insight into the workings and consequences of disasters facing humankind.

ESC 4415 A New Look at Dinosaurs (3 q.h.)

This course is designed to provide students with a background in the geological, biological, and anatomical concepts needed to understand the world of dinosaurs. The various types of dinosaurs, including the taxa of each group, i.e., their distribution, diversity, and functional morphology, will be explored. New discoveries about dinosaurs will be discussed in order to better understand the processes of dinosaur evolution and extinction.

ESC 4435 Air Quality (3 q.h.)

While modern societies contribute much pollution to the atmosphere, natural processes can also adversely affect air quality. This course discusses the wide range of impacts that can affect air quality, includ-

ing particulates such as asbestos or lead-rich dust, volcanic ash, or ash from forest fires and power generation; biological inputs such as pollen and methane from landfills or cattle feedlots; and gaseous chemical pollutants such as radon and volatile organic compounds. Current air-quality legal standards and methods of monitoring air quality are also discussed.

ESC 4450 Introduction to Hydrology (3 q.h.)

This course describes the processes that affect the movement and composition of water at and near the earth's surface, including rain and atmospheric chemistry, groundwater, rivers, lakes, estuaries, and the sea. Also discussed is how an understanding of these processes can be used to manage the use of water resources.

ESC 4680 Science, Technology, and Ancient Societies (3 q.h.)

Interdisciplinary course conducted using an independent study/seminar approach. An examination of changes in sciences, technologies, and societal structures from prehistory through classical cultures and the beginning of the Renaissance.

ESC 4681 Science, Technology, and Modern Societies (3 q.h.)

Interdisciplinary course conducted using an independent study/seminar approach. An examination of changes in sciences, technologies, and societal structures from the beginning of the Renaissance through the period of industrialization and the present day.

ESC 4682 Science, Technology, and Society (Intensive) (6 q.h.)
Same as ESC 4680 and ESC 4681.

ESC 4685 Contemporary Issues in Science, Technology, and Society (3 q.h.)

Interdisciplinary course conducted using an independent study/seminar approach. An examination of the impacts of science, technology, and society on one another. Topics may include, but are not limited to, contemporary and future technical and societal issues in biotechnology; communications, computers, information and artificial intelligence; modern manufacturing developments; environment; energy; medicine; health care; transportation; space; forensics; patents; and technology transfer. Competing technical and societal interests will also be considered.

ESC 4700 Advanced Tutorial 1 (3 q.h.)
Opportunity to take upper-level course independently. See page 219 for details. *Prereq.* 87 q.h.

ESC 4701 Advanced Tutorial 2 (3 q.h.)
See ESC 4700.

ESC 4801 Independent Study 1 (3 q.h.)
Opportunity to undertake special research. See page 219 for details. *Prereq.* 96 q.h., 3.0 q.p.a.

FINANCE

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FI 4101 Personal Finance (3 q.h.)
A practical approach to problems involved in managing personal finances. Includes financial planning, budgeting, obtaining credit and loans, income taxes, savings and investments, life insurance, home buying, and estate planning. Subjects are treated in a nontechnical manner. Recommended for non-Finance majors.

FI 4104 Planning Your Investment Portfolio (3 q.h.)
Participants work with the instructor to develop their own personal investment portfolio. The course begins with each student setting his/her investment goals in terms of desired profitability, risk taking, and the timing of wealth creation. After an introduction to Wall Street, stocks, bonds, mutual funds, and other investments are evaluated and selected to comprise portfolios that best meet each participant's goals. (For non-Finance majors.)

FI 4110 Finance Basics for Managers (3 q.h.)
Students will learn the basics of interpreting and using financial statements and budgeting in relation to the decision-making process. Managerial tasks such as financial planning, capital budgeting, working capital management, long-term and short-term financing decisions, and valuation will be examined. Spreadsheets used. *Not open to students who have taken FI 4301.*

FI 4301 Principles of Finance (3 q.h.)
The scope and nature of finance, introducing basic financial concepts and principles. Includes financial analysis, financial planning, working capital management, the time value of money, and an introduc-

tion to financial markets and different types of securities. Spreadsheets used. *Prereq.* ACC 4102, ECN 4116, and MIS 4102 or MIS 4114.

FI 4302 Financial Management (3 q.h.)
Introduction to financial management from both domestic and international perspectives. Includes valuation, leverage, financial analysis and planning, working capital management, capital budgeting, cost of capital, and long-term and short-term financing decisions. Spreadsheets used. *Prereq.* FI 4301. *Please bring a calculator to class.*

FI 4307 Small Business Finance (3 q.h.)
Uses basic processes, principles, tools, and concepts of finance within the parameters of a small business to develop a complete financial plan that projects the future circular flow of funds by analyzing and then integrating the impact of both investment decisions (use of funds) and financial decisions (source of funds).

FI 4310 Investment Principles (3 q.h.)
Investment concepts, practices, and procedures. Reviews various types of investments, including the role of security markets and security analysis. *Prereq.* FI 4301.

FI 4320 Credit Principles (3 q.h.)
Introduction to credit and its functions. Examines the role of the credit executive, credit investigation, documentary credit, trade credit, and organization of the credit department. *Prereq.* FI 4301.

FI 4325 Budgeting and Planning (3 q.h.)
Studies the interrelation among functional areas in an organization using consolidated profit planning as an integrating device. Topics covered include cost concepts, cost-volume-profit analysis, profit planning, general expense planning, production planning, purchasing, activity-based costing, and just-in-time inventory management. *Prereq.* FI 4301.

FI 4340 The Planning and Funding of Employee Benefits (3 q.h.)
Course examines issues related to employee benefits from a financial perspective. Topics covered include group-life and disability income benefits, life insurance, pension plans, pension costs and funding, profit sharing, savings plans, 401k and ESOP plans, and the funding of

employee benefit plans in general. This course is particularly well suited to individuals responsible for the design and/or management of employee benefit plans as a function of either financial management or human resources management capacities. It is also appropriate for those wishing to better understand their own personal benefit plans.

FI 4360 Speculative Markets (3 q.h.)
Studies futures contracts and options contracts, their rapid growth in speculative markets, and the uses of these contracts. Both individual investors and institutional investors such as portfolio managers, banks, multinational corporations, and mutual funds can now minimize their exposure to movements in stock prices, exchange rates, and interest rates by following active and dynamic portfolio strategies that employ these new instruments. *Prereq.* FI 4411 or instructor's permission.

FI 4365 Business and Finance Information (3 q.h.)
This course provides students with an understanding of the major information sources and services in business and finance. In particular, the course will focus on published materials, on-line databases, and Internet resources. Students will develop research skills and present information in a project report. *Prereq.* ACC 4101.

FI 4370 The Mutual Funds Business (3 q.h.)
Students will review portfolio management and learn about shareholder servicing, federal and state regulatory oversight, mutual fund marketing and distribution, technology issues, as well as the function that mutual funds serve in our society. The course will be of particular interest to persons interested in the mutual fund business as a career and to those who want to better understand this dynamic multi-trillion dollar industry as it affects the nation's savings and investment trends. Students will study cases about the fastest-growing savings medium in the world. *Prereq.* FI 4310.

FI 4403 Financial Strategy (Reserved) (3 q.h.)
Financial management using the case-method approach. Includes advanced capital budgeting, capital structure. Decision-making, dividend policy, leasing, convertibles and warrants, mergers,

failures and reorganization, and the timing of financial policy. *Prereq.* FI 4302 and 80 q.h.

FI 4411 Investment Management (Reserved) (3 q.h.)

Relationship between the economy and stock prices. Covers corporate analysis, earnings, dividends, and cash flow and introduces portfolio analysis. Studies technical analysis versus fundamental factors. *Prereq.* FI 4310 and 80 q.h.

FI 4421 Credit Management (Reserved) (3 q.h.)

Forms of credit and collection services, including analysis of financial statements, determination of credit-worthiness, creditors' rights, adjustment bureau operations, credit insurance, and guarantees. *Prereq.* FI 4320 and 80 q.h.

FI 4426 Financial Control (Reserved) (3 q.h.)

Studies the development and application of flexible budgets, planning and control of capital expenditures, computer applications in financial analysis and profit planning, pricing decisions, control of decentralized operations, and analysis of budget variations. *Prereq.* FI 4325.

FI 4450 International Finance (Reserved) (3 q.h.)

Introduction to international financial management in the multinational corporation. Analyzes basic problems and finance considerations involved with international investments, trade, and payments. Also covers planning in the international environment related to exchange rates, financial strategy, sources of capital, working capital management, fund flows, and management control through accounting and financial reporting. *Prereq.* FI 4302 and 80 q.h.

FI 4600 Honors Program 1 (4 q.h.)

Opportunity to undertake an in-depth research study project. See page 219 for details. *Prereq.* 96 q.h., 3.5 q.p.a.

FI 4601 Honors Program 2 (4 q.h.)
See FI 4600.

FI 4602 Honors Program 3 (4 q.h.)
See FI 4600.

FI 4701 Independent Study 1 (3 q.h.)
Opportunity to undertake special research. See page 219 for details. *Prereq.* 96 q.h., 3.0 q.p.a.

FI 4702 Independent Study 2 (3 q.h.)
See FI 4701.

FI 4703 Independent Study 3 (3 q.h.)
See FI 4701.

FI 4800 Advanced Tutorial 1 (3 q.h.)
Opportunity to take upper-level course independently. See page 219 for details. *Prereq.* 87 q.h.

FI 4801 Advanced Tutorial 2 (3 q.h.)
See FI 4800.

HEALTH INFORMATION ADMINISTRATION

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Currently enrolled students should plan their course of study with the program director to avoid duplication of courses.

HIA 4100 Medical Terminology Workshop (1 q.h.)

This course is designed for students who have experience in the healthcare field. Students will work independently to pass a proficiency examination in medical terminology. They will be required to take a pre-test and successfully pass a mid-term and final proficiency examination. *Prereq.* BIO 4163/4167, HSC 4302 or permission of instructor.

HIA 4200 Medical Terminology (formerly HIA 4300) (3 q.h.)

This course is designed to teach students how to analyze and define medical terms commonly used in healthcare. Anatomic, diagnostic, operative, and pathological terms relating to all body systems will be studied. Students will learn to read, define, and analyze medical terminology from medical reports and records. *Not open to students who have taken HIA 4300.* *Prereq.* BIO 4163/4167, HSC 4302, or permission of instructor.

HIA 4315 Health Information Administration 1 (3 q.h.)

Introduction to health information systems covering health information history, numbering, filing, security, and the health information manager's relationship to the health facility. Stresses quantitative and qualitative analysis of the health record, with emphasis placed on licensing and accrediting standards for documentation of health information. Review of com-

puterized applications used to support various health information systems. *Prereq.* BIO 4161/4165, BIO 4162/4166, BIO 4163/4167 or equiv., and HIA 4300.

HIA 4316 Health Information Administration 2 (3 q.h.)

Study of the preservation and retention of health records, the legal aspects of health information, the study of the basic principles of abstracting and compiling statistics for healthcare facilities, and the preparation and display of statistical reports. *Prereq.* HIA 4315.

HIA 4328 Nomenclature and Classification 1 (3 q.h.)

Designed to develop basic student competencies in the use of ICD-9-CM and other coding systems, introduce the major coding systems used today in healthcare delivery systems, identify issues related to coding and data quality, and the uses of coding for index development. Review use of encoding systems. *Prereq.* BIO 4161, BIO 4162, BIO 4163 or equiv., HIA 4300, HIA 4315, or instructor's permission.

HIA 4329 Nomenclature and Classification 2 (3 q.h.)

Designed to develop advanced student competencies in the use of ICD-9-CM coding system. Continuation of HIA 4328. *Prereq.* HIA 4328.

HIA 4330 Current Procedural Terminology (CPT) (3 q.h.)

This course is designed to teach students how to classify and code ambulatory care encounters in the healthcare setting using CPT. Students will learn how to code physician office visits, surgical encounters and hospital-based ambulatory encounters. Billing and compliance issues will be a central focus of the course. *Prereq.* HIA 4329 or permission of the instructor.

HIA 4332 Medical/Clinical Coding Practicum (1 q.h.)

Students affiliate at hospitals, ambulatory care centers and/or physician group practices to acquire practical applications of medical/clinical coding. Students will code inpatient admissions and ambulatory care encounters using ICD-9-CM and CPT coding systems. They will review government and third party payer requirements. Compliance issues regard

ing medical/clinical coding will be emphasized. *Prereq.* HIA 4329 and HIA 4330. *Requires liability insurance coverage.*

HIA 4333 Compliance in the Healthcare Sector (3 q.h.)

This course will trace the evolution of compliance in the healthcare arena. It will focus on key legislation impacting healthcare providers, criminal and civil penalties, corporate integrity agreements, and the design and implementation of a compliance plan. *Prereq.* HMG 4301 or *permission of instructor.*

HIA 4335 Clinical Practicum 1 (3 q.h.)

First of three clinical practice affiliations will emphasize the technical aspects of health information administration. This clinical will include admitting procedures, health record analysis and retention, release of information, coding, and indexing. *Prereq.* HIA 4316 and HIA 4329. *Requires liability insurance coverage.*

HIA 4336 Clinical Practicum 2 (2 q.h.)

The second of three clinical practice affiliations is designed to introduce students to alternative health information systems. Students affiliate at long-term care facilities, community health centers, HMOs, mental health facilities, VNAs, etc. Students are also introduced to the role of the health information consultant within non-acute care settings. *Prereq.* HIA 4400 and HIA 4335. *Requires liability insurance coverage.*

HIA 4337 Clinical Practicum 3 (3 q.h.)

The final clinical affiliation emphasizes the organizational and managerial aspects of health information systems. Students are required to do special management projects under the direction of a clinical preceptor. Experience in quality management programs within hospitals and healthcare settings is also gained. *Prereq.* HIA 4431, HIA 4415 (formerly HIA 4410), and HIA 4336. *Requires liability insurance coverage.*

HIA 4415 Healthcare Quality Management (formerly HIA 4410) (3 q.h.)

Introduction to utilization management, PRO requirements, quality management, and risk management in health facilities, with emphasis on methodology for development of criteria and tool development and the performance of monitoring and evaluation of patient care, physician, and

provider performance. Evaluation on monitoring as current method of cost and quality control will also be addressed. *Prereq.* HIA 4400 or *permission of instructor.*

HIA 4430 Health Information Management 1 (3 q.h.)

Focus is on the organization and management of a Health Information Department within the healthcare setting. Stresses management principles and practices utilized in health information systems. Management skills necessary to develop organization charts, policies, job descriptions, and job procedures are reviewed. The course is designed to develop the student's ability to plan, organize, actuate, and control through the principles of management and the practice of health information administration. *Prereq.* HMG 4100, HIA 4329, and HIA 4400.

HIA 4431 Health Information Management 2 (3 q.h.)

Focus is on the management of a Health Information Department within the healthcare setting. Emphasis is placed upon productivity within the hospital and the Health Information Department. Hospital and departmental budgeting, cost control mechanisms, forms design, and office layout will also be reviewed. Review of contracting will also be studied. This course is a continuation of HIA 4430. *Prereq.* HIA 4430.

HIA 4500 Health Information Computer Systems (3 q.h.)

Introduction and review of current computer applications being used by Health Information Departments in traditional and alternative healthcare facilities. Emphasis is placed on information systems relating to health/patient records. Management of health information databases, software applications, and systems selection. *Prereq.* COM 4101 and HIA 4400.

HIA 4520 Topics in Health Information Administration (3 q.h.)

Designed to include an extension and expansion of new or updated issues in Health Information Management. Current issues will be introduced in a seminar fashion, focusing on training and development, resume writing and interviewing techniques, and computer trends and application. *Prereq.* HIA 4415 (formerly HIA 4410), HIA 4500, HIA 4431.

HIA 4530 Healthcare Systems/Computerized Patient Record Systems (formerly Health Information Systems Analysis) (3 q.h.)

Analysis and design of health information systems. Assessment and decision-making applications of computer resources in patient/health information management. Concepts and current methods of computerizing patient/health records. *Prereq.* HIA 4431 and HIA 4500 or *instructor's permission.*

HIA 4700 Advanced Tutorial 1 (3 q.h.)

Opportunity to take upper-level course independently. See page 219 for details. *Prereq.* 87 q.h.

HIA 4701 Advanced Tutorial 2 (3 q.h.)

See HIA 4700.

HIA 4800 Independent Study (3 q.h.)

Students will work with the Health Information Administration Program Director to select a topic and/or project to be extensively reviewed and studied. This independent study project is designed to give students the opportunity to explore in depth a subject relevant to their interests. It is designed to give them the opportunity to study a problem, present a proposal, carry out a course of action, and to prepare both a written and oral presentation of their activity. *Prereq.* HMG 4411 and HIA 4431.

HIA 4900 Cancer Registry Organization and Operation (3 q.h.)

Focus is on organization of cancer and disease registries. Regulatory requirements for approval by various licensing and accrediting agencies will be emphasized. The day-to-day operation of a cancer registry will be reviewed, including topics such as confidentiality, case finding, follow-up, reporting, etc. Quality control of cancer data is also reviewed. *Prereq.* HSC 4302 or *instructor's permission.*

HIA 4910 Cancer Registry Abstracting and Coding 1 (3 q.h.)

The principles of cancer registry case finding and abstracting are reviewed. Cancer staging and coding will be reviewed in detail. Standard treatment modalities and clinical trials/research protocols are also reviewed in detail. This course is the first part of a two-part course. *Prereq.* HSC 4302 or *instructor's permission.*

HIA 4920 Cancer Registry Abstracting and Coding 2 (3 q.h.)

Continuation of HIA 4910 Cancer Registry Abstracting and Coding 1. It is designed to expand student competencies in cancer abstracting, coding, and staging, with emphasis on the practical applications of each. New and experimental treatment modalities and clinical trials/research will be reviewed in depth. This course is the second part of a two-part course. *Prereq.* HIA 4910.

HIA 4930 Cancer Registry Data Utilization and Statistics (3 q.h.)

Focus is on data utilization, standardization of data for comparison, and statistical techniques used in cancer registries. Descriptive and analytic epidemiology is studied. Clinical and administrative usage of cancer registry data will be reviewed. Uses of cancer data for patient care, clinical practice, and quality management will also be reviewed. *Prereq.* HIA 4900 or instructor's permission.

HEALTH MANAGEMENT

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HMG 4100 Managing Health Services Organizations 1 (formerly Hospital Organization and Management 1) (3 q.h.)*

Study of health services organizational structure and administration. Focuses on the complex nature of health administration, its interdependent relationships, and organizational strategy. *Prereq.* HMG 4301 or permission of the instructor.

HMG 4101 Managing Health Services Organizations 2 (formerly Hospital Organization and Management 2) (3 q.h.)*
Continuation of HMG 4100, emphasizing organizational issues and management techniques. *Prereq.* HMG 4100.

HMG 4103 Managing Health Services Organizations (Intensive) (formerly Hospital Organization and Management Intensive) (6 q.h.)*
Same as HMG 4100 and HMG 4101.

HMG 4200 Health Science Statistics (3 q.h.)

This course introduces the gathering, display, interpretation, and manipulation of data, as well as the fundamentals of research design in the healthcare arena.

Descriptive statistics such as mean, median, mode, standard deviation, as well as sampling protocols will be addressed. Inferential statistics, including the research and null hypothesis, confidence limits, and the application of Chi-square and degrees of freedom, are highlighted. The role and use of probability in sampling and application are also discussed. Internal and external reporting needs as well as primary and secondary source documents will be studied. *Prereq.* MTH 4111, MTH 4107 or equiv.

HMG 4215 Health Law (3 q.h.)

Basic health services organizational legal issues relating to assessing liability, the impact of medical malpractice, risk management, and current ethico-legal dilemmas in the practice of medicine. *Prereq.* HMG 4101 and HMG 4301.

HMG 4300 Home Healthcare (3 q.h.)

Programs and techniques for providing effective community home healthcare and the impact of these programs on the health care delivery system. *Prereq.* HMG 4101 and HMG 4301.

HMG 4301 Healthcare Delivery Systems (3 q.h.)*

The structure, function, and organization of healthcare services.

HMG 4310 Principles and Practices of Community Health 1 (3 q.h.)

Community healthcare activities. Emphasizes community health promotion and the coordination and integration of medical and self-care activities with the needs, goals, and resources of the community. *Prereq.* HMG 4101 and HMG 4301.

HMG 4311 Principles and Practices of Community Health 2 (3 q.h.)

Continuation of HMG 4310. Emphasizes specific community health problems. *Prereq.* HMG 4310.

HMG 4325 Health Planning and Regulation (3 q.h.)

Analysis of past and present interventions that affect the supply and demand side of the healthcare system at the community, state, regional, and national levels. Planning and regulations are discussed in the context of political considerations influencing their implementation and effectiveness. *Prereq.* HMG 4215.

HMG 4390 The Patient's Impact on Decision-Making (3 q.h.)

Explores some of the personal dimensions of illness and treatment and the nature of the relationships between ill people and those trying to care for them. Emphasis on how this interaction affects and influences health management decisions. *Prereq.* HMG 4101 and HMG 4301.

HMG 4400 Healthcare Financial Management 1 (3 q.h.)

Introduction to healthcare financial management, including issues in fund accounting, control, and reimbursement. *Prereq.* FI 4301, HMG 4101, and HMG 4301.

HMG 4401 Healthcare Financial Management 2 (3 q.h.)

Continuation of HMG 4400. *Prereq.* HMG 4400.

HMG 4411 Research for Managers (3 q.h.)

Provides students with an awareness of the research process and the scientific methods. Types of research design and appropriate approaches to research problems will be covered from both the perspective of a consumer of research data and from that of a person doing research in real world settings. Emphasis will be placed on integrating the research process into the professional decision-making process in the real world. *Prereq.* COM 4101, HMG 4200 or equiv., HMG 4101, and HMG 4301.

HMG 4440 Healthcare Operations Management (3 q.h.)

An applications-oriented case course focusing on selected operations management planning, restructuring, and control problems common to hospitals and other health service organizations. *Prereq.* HMG 4101 and HMG 4301.

HMG 4445 Healthcare Marketing and Communication 1 (3 q.h.)

Examines marketing in health services organizations, focusing on the connections between marketing and strategic management. *Prereq.* HMG 4101 and HMG 4301.

**It is strongly recommended that this course be taken at the beginning of the student's course of study.*

HMG 4446 Healthcare Marketing and Communication 2 (3 q.h.)
Continuation and expansion of topics covered in HMG 4445. *Prereq.* HMG 4445.

HMG 4580 Information Processing in Healthcare (3 q.h.)

Introduction to computer applications and management in healthcare facilities, including the evolution and application of computer use in health, clinical, and business information systems; patient care; management; public health; and reimbursement. The information flow of clinical and nonclinical patient data is applied to the principles of information system life-cycle development. The role of the health manager in selecting, implementing, and evaluating information systems for health care facilities is considered. *Prereq.* HMG 4101 and HMG 4301.

HMG 4610 Principles and Practices of Community Mental Health (3 q.h.)

Introduction to the principles of community mental health, emphasizing the development, implementation, operation, delivery, and use of community mental health services. *Prereq.* HMG 4101 and HMG 4301.

HMG 4620 Current Issues in Health Services Management (3 q.h.)

This course focuses on understanding the issues and learning how to prevent and solve administrative and biomedical ethical problems in healthcare settings. Included are strategies for dealing with withdrawal and withholding of treatment, DNR orders, death and dying, HIV and AIDS, informed consent, social responsibility, among other topics.

HMG 4654 Health Management Practicum (3 q.h.)

Working in conjunction with a preceptor, the student performs independent work within an administrative setting. Projects include problem identification, data gathering, analysis of alternatives, and implementation of a plan of action. *Students must have completed 130 q.h. of the degree requirements before registering for this course. Applications for registering must be submitted one full quarter prior to the Winter quarter. Contact the program office at 617.373.5796 for direction sheet and petition form. Offered in Winter only.*

HMG 4700 Advanced Tutorial 1 (3 q.h.)
Opportunity to take an upper-level course independently. See page 219 for details. *Prereq.* 87 q.h.

HMG 4701 Advanced Tutorial 2 (3 q.h.)
See HMG 4700.

HMG 4801 Independent Study 1 (3 q.h.)
Opportunity to undertake special research. See page 219 for details.

HMG 4802 Independent Study 2 (3 q.h.)
See HMG 4801.

HUMAN RESOURCES MANAGEMENT

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HRM 4301 Organizational Behavior 1 (3 q.h.)

This course is designed to provide a fundamental presentation of the dynamics of organizational life. Emphasis is placed on individual and interpersonal behavior in a work setting. Primary focus is on managerial applications of the organizational sciences and includes topics such as motivation, communications, and leadership.

HRM 4302 Organizational Behavior 2 (3 q.h.)

Expanding on the fundamentals of HRM 4301, this course highlights critical issues associated with a changing domestic and international workforce, productivity, and development of effective organizational structures. Other topics include stress, counseling, employee rights, and group dynamics. *Prereq.* HRM 4301.

HRM 4304 Organizational Behavior Intensive 1 and 2 (6 q.h.)

Same as HRM 4301 and HRM 4302.

HRM 4309 Labor Relations (3 q.h.)

An examination of the development, current status, and role of organized labor and management structures. The rights and responsibilities of employer organizations, individual employees, and their influence on labor relations will be studied. Collective bargaining and grievance procedures will be introduced within the legal framework under which they function. Student participation will be required during case analysis and exercises.

HRM 4310 Human Resources Management (formerly Personnel Management 1) (3 q.h.)

Study of the role of the human resources manager and department. Particular focus on the techniques of employee forecasting, recruitment, compensation, and employee relations. Case study and exercises will also deal with critical issues around affirmative action and employee safety.

HRM 4320 Techniques of Employee Selection (3 q.h.)

Fundamental and advanced methods of recruitment, selection, and placement techniques are covered. This includes well-known methods such as interviewing and employee testing as well as controversial methods such as handwriting analysis and drug testing.

HRM 4321 Wage and Salary Administration (3 q.h.)

Wage and salary determination, including merit and incentive plans, wage and salary structure, compensation methods, and the impact of employer-employee relations on compensation systems.

HRM 4322 Employee Benefits (3 q.h.)

Study of private and public problems related to job and worker income security. Includes unemployment compensation, training and employment services, private guaranteed income, retirement pension plans, and disability and group insurance.

HRM 4325 Training and Development in Organizations (3 q.h.)

Explores the basics of training in a variety of settings in organizations. Special emphasis is placed on training and development as a human resource function by providing an overview of the principles of adult learning, needs assessment, goal setting, and design and evaluation.

HRM 4333 Employment Rights (3 q.h.)

This course examines the development and present status of laws and regulations affecting the U.S. work force. It examines basic employment concerns, from both the employee and employer perspectives,

such as hours of work, minimum wage, health and safety, as well as issues of access and opportunity, such as EEO, ADA, and Family and Medical Leave. Current court rulings, case studies, and analysis will focus students on critical issues and challenges facing individuals, businesses, and society entering the 21st century.

HRM 4334 Human Resources Information Systems (3 q.h.)

This course will explain the effective management of computer-based methods in such areas as work force planning, skills inventory, payroll, and government report generation. Basic techniques of data collection and system design and implementation will be discussed. Students will learn to use information systems to solve human resource problems in a cost-effective manner.

HRM 4347 Managing People in International Settings (3 q.h.)

This course deals with effective human resource management in international and cross-cultural environments. The student will investigate the selection, orientation, and training of personnel for work in multicultural environments. Focusing on the management of the international employee in the United States and abroad, effective cross-cultural communication and behavior will be stressed. *Prereq. HRM 4302.*

HRM 4348 The Changing Work Force (3 q.h.)

As we approach the 21st century, a key word for businesses and individuals alike is change. Research and the popular press bombard us with predictions of increasing complexity in the workplace. In this course, students will consider the many effects of globalization, diversity, technological change, new work force arrangements. Strong consideration will be given to the individual and organizational skills necessary to function effectively in the midst of turbulence and transition.

HRM 4415 Leadership (Reserved) (3 q.h.)

In this course, the leadership function in a variety of organizational settings is studied. Using a contingency approach, students explore a range of possible leadership behaviors, relating the appropriateness of a particular style to a number of situational factors. Readings provide an opportunity to explore several contingency

theories of leadership, and cases allow for the application of these models. *Prereq. HRM 4302 or HRM 4304 and 80 q.h.*

HRM 4600 Honors Program 1 (4 q.h.)
Opportunity to undertake an in-depth research study project. See page 219 for details. *Prereq. 96 q.h., 3.5 q.p.a.*

HRM 4701 Independent Study 1 (3 q.h.)

Opportunity to undertake special research. See page 219 for details. *Prereq. 96 q.h., 3.0 q.p.a.*

HRM 4702 Independent Study 2 (3 q.h.)

See HRM 4701.

HRM 4800 Advanced Tutorial 1 (3 q.h.)
Opportunity to take upper-level course independently. See page 219 for details. *Prereq. 87 q.h.*

HRM 4801 Advanced Tutorial 2 (3 q.h.)
See HRM 4800.

HEALTH SCIENCE

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HSC 4210 Basic Nutrition (3 q.h.)

Introduction to nutrition science, foods, and major nutrients. Focuses on current scientific knowledge of nutrition and how this knowledge can guide an individual toward making appropriate food choices.

HSC 4220 Basic Pharmacology (3 q.h.)

Introduction to the major categories and classes of pharmacological agents. Covering mode of action, indications, contraindications, major interactions, toxicity, and side effects. *Prereq. BIO 4163, CHM 4135, or equiv., or instructor's permission.*

HSC 4301 Pathophysiology 1 (3 q.h.)

The pathophysiology of major diseases. Discusses diagnosis and treatment, emphasizing inflammation, immunology, infectious disease, oncology, endocrine disorders, and trauma. *Prereq. BIO 4163/4167 or equiv.*

HSC 4302 Pathophysiology 2 (3 q.h.)

Continuation of HSC 4301, using an organ-system approach to disease. Emphasizes cardiovascular, gastro-intestinal, pulmonary, and musculo-skeletal diseases. *Prereq. HSC 4301.*

HSC 4310 Public Health 1 (3 q.h.)

Study of principles of public health and current mental and physical health problems. Includes communicable diseases, mental health, maternal and child health; official, voluntary, and international health organizations; and alcoholism. Also examines federal, state, and community resources mobilized to aid in prevention, identification, treatment, and rehabilitation.

HSC 4311 Public Health 2 (3 q.h.)

Continuation of HSC 4310. Includes environmental health, chronic diseases, preventive medicine, and public health education.

HSC 4315 Environmental Problems and Health (3 q.h.)

Environmental conditions on land and in the air and water, including the causes of pollution, its effects on human and other life, and a general discussion of current control methods. Emphasizes the significance of environmental problems for the individual.

HSC 4317 Women's Health Issues (3 q.h.)

This course addresses the unique concerns of women in relation to health concerns. Different aspects of healthcare systems and how these systems affect women's bodies and minds will be examined. Students will understand health conditions unique to women: the role of women as healthcare providers and consumers and the relationship between feminism and the women's health movement.

HSC 4320 Training and Development in the Health Professions 1 (3 q.h.)

Educational program designed for the practitioner, including program planning, teaching strategies, and the development and evaluation of educational objectives.

HSC 4321 Training and Development in the Health Professions 2 (3 q.h.)

Continuation of HSC 4320. Emphasizes program implementation and evaluation and student motivation. *Prereq. HSC 4320.*

HSC 4350 Introduction to Environmental Health and Safety (3 q.h.)

This course highlights key aspects of the environmental health and safety field. Topics include biological safety, chemical

safety, industrial hygiene, general safety, toxicology, radiation protection, environmental protection, and hazardous waste management. Regulatory agencies such as the Occupational Safety and Health Administration (OSHA), the Nuclear Regulatory Commission (NRC), and the Environmental Protection Agency (EPA) will be discussed along with applicable regulatory requirements. *Prereq. entry-level chemistry and biology.*

HSC 4352 Environmental Law (3 q.h.)

This course will present the 20th century evolution from the common law to the current laws and regulations pertaining to occupational health and safety and environmental protection. The course will look at how this segment of administrative law fits within the parameters of the U.S. Constitution while attempting to achieve societal and political objectives. Rather than being an exhaustive examination of major environmental legislation, the course will utilize selected laws and agency regulations to illustrate the authority possessed by federal and state governments and by the courts and the limits imposed upon such authority. *Co-requirement with HSC 4350.*

HSC 4354 Loss Prevention and Fire Safety (3 q.h.)

This course expands upon the fundamental techniques of job safety analysis to non-occupational injuries, product safety, and property loss prevention. Life safety code, consumer product protection, and fire protection programs are reviewed as part of risk management.

HSC 4401 Occupational Safety (3 q.h.)

This course introduces the fundamental concepts of designing and implementing safety programs for construction and general industry. Job safety analysis, safety management techniques, and regulatory requirements are reviewed through text readings and case studies for a variety of workplaces. *Prereq. HSC 4350.*

HSC 4402 Health Hazards of Workplace Environments (3 q.h.)

This course will cover how to recognize, evaluate, and control hazards of different industrial and workplace environments. General industry processes such as welding, machining, degreasing, electroplating, etc., will be discussed as well as the hazards of different types of production facilities (electronics, semiconductor, pe-

troleum refining, pharmaceuticals, etc.). The hazards of hazardous waste sites and offices in sick buildings will also be reviewed. Field trips to three area industrial facilities will be arranged. *Prereq. HSC 4350.*

HSC 4403 Environmental Compliance (3 q.h.)

This course focuses on the major environmental problems and regulations that have developed over this last century. Requirements under the CAA, CWA, RCRA, SARA, and CERCLA will be covered in depth. Various control technologies and industry practices as they relate to these regulations will also be reviewed and discussed. Includes an overview of ISO 14000. *Prereq. HSC 4350.*

HSC 4404 Hazardous Waste Management (3 q.h.)

This course provides a comprehensive overview of the proper identification, management, and disposal of infectious, radioactive, chemical, and mixed wastes. Common industry practices and disposal technologies will be addressed for the various waste streams. Includes a review of generator status and waste minimization principles. *Prereq. HSC 4350.*

HSC 4501 Industrial Toxicology (3 q.h.)

This course will present the principles of toxicology, with emphasis on workplace exposures. Route of exposure, dose-response relationship, types of toxicity, and the modes of action of toxic substances will be covered. Workplace examples include exposure to air contaminants, metals, pesticides, carcinogens, and mutagens. Federal regulations and the basis for workplace standards are discussed, including threshold limit values and biological exposure indices. Sources of toxicological information are explored. *Prereq. BIO 4163, CHM 4135, and MTH 4120.*

HSC 4502 Industrial Hygiene Measurements (3 q.h.)

All aspects of general industrial hygienic practice will be covered, including how toxic substances behave in the workplace atmosphere, state-of-the-art measurement techniques for toxic exposures (gases, vapors, and particulates), calibration and use of air sampling equipment, and compliance with OSHA standards for chemical exposures. An overview and introduction to measurement of other

workplace hazards (noise, heat, stress, radiation, and ventilation) will also be covered. *Prereq. HSC 4350 and MTH 4120.*

HSC 4503 Engineering Control of Chemical Hazards in the Workplace (3 q.h.)

Exposure to chemicals in the workplace needs to be controlled to below the OSHA permissible exposure limits. The preferred control method is by engineering methods, specifically general and local exhaust ventilation. This course will emphasize the design, selection, and performance evaluation of general and local exhaust ventilation systems. It will also cover non-engineering control methods such as personal protective equipment (respirators and protective clothing). *Prereq. HSC 4350 and MTH 4120.*

HSC 4504 Recognition and Control of Non-Chemical Hazards in the Workplace (3 q.h.)

Non-chemical hazards that need to be evaluated in the workplace include noise, heat and cold stress, and ionizing and non-ionizing radiation. This course will cover evaluation and measurement techniques and control of non-chemical hazards. *Prereq. PHY 4102 and MTH 4120.*

HSC 4600 Advanced Nutrition (3 q.h.)

The study of the function of nutrients in the human organism. Includes nutrient needs in health and disease states and at varying stages of the life cycle. Includes recent developments in normal nutrition and a critical review of the literature and experimental data on which principles of human nutrition are based. *Prereq. HSC 4210.*

HSC 4601 Advanced Pharmacology (3 q.h.)

Continuation of HSC 4220. Includes pharmacokinetics, metabolism, age effects. Additional pharmacological categories are discussed, with emphasis on drug utilization reviews, and patient profile monitoring. *Prereq. HSC 4220, equiv., or instructor's approval.*

HSC 4610 Geriatric Nutrition (3 q.h.)

Integration of basic nutrition principles with the most current information on the aging process. Reviews state, local, and federal nutrition programs in terms of services, eligibility, and effect upon the elderly. *Prereq. knowledge of basic nutrition or instructor's permission.*

HSC 4700 Advanced Tutorial 1 (3 q.h.)
Opportunity to take upper-level course independently. See page 219 for details. *Prereq.* 87 q.h.

HSC 4701 Advanced Tutorial 2 (3 q.h.)
See HSC 4700.

HSC 4801 Independent Study 1 (3 q.h.)
Opportunity to undertake special research. See page 219 for details. *Prereq.* 96 q.h., 3.0 q.p.a.

HSC 4802 Independent Study 2 (3 q.h.)
See HSC 4801.

HSC 4803 Independent Study 3 (3 q.h.)
See HSC 4801.

HISTORY

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HST 4101 The Civilization of the Ancient and Medieval Worlds (3 q.h.)
Development of human institutions up to the end of the Middle Ages. Emphasizes the continuities and changes that occur within civilizations and the similarities, differences, and relationships that exist among contemporary civilizations around the world. Explores implications of each historical period for our lives today.

HST 4102 The Civilization of the Early Modern World (3 q.h.)
The period from the end of the Middle Ages to the French Revolution in 1789. Emphasizes the intellectual, technological, and political expansion of Europe and the reactions of the rest of the world to it. Special attention is given to such topics as the rise of dynastic states, the rise and fall of mercantilism, the scientific revolution, exploration and gunpowder technology, and order and revolution.

HST 4103 The Civilization of the Modern World (3 q.h.)
The world from 1789 to the present. Includes capitalism, industrialization, nationalism, imperialism, the clash of ideologies in the nineteenth century, and a study of total war in the present century. Based on this historical study, the prospects for the future will be explored.

HST 4110 History of Civilization A (4 q.h.)
Major ideas and institutions of civilizations from ancient times to 1648. *For SGS students only.*

HST 4111 History of Civilization B (4 q.h.)
Continuation of HST 4110, covering the period since 1648. *For SGS students only.*

HST 4201 American History 1763-1848 (3 q.h.)
America from 1763 to 1848, with attention to the development of political, economic, and social institutions in the new republic.

HST 4202 American History 1848-1917 (3 q.h.)
The United States from 1848 to 1917, with attention to the Civil War, economic development thereafter, and the Progressive Era.

HST 4203 American History Since 1917 (3 q.h.)
The United States since 1917, an age of urbanized industrialism and international involvement and crisis.

HST 4241 The Historian's Craft (3 q.h.)
Discussion of ways in which the historian studies the past, with emphasis on research and writing.

HST 4250 Historical Geography (3 q.h.)
Studies the impact of geography on history. This course may be used to satisfy the Standard I geography requirement for students seeking Massachusetts certification as a secondary education teacher of social studies or history. (Thematic Group C, G, or H)

HST 4263 Oral History (3 q.h.)
Learning history from those who lived it, students conduct tape-recorded interviews of first-hand experiences in a selected area of twentieth-century history. Students need access to an audiotape recorder. (Thematic Group B or E)

HST 4265 Introduction to Public History (3 q.h.)
Topics include the new discipline of public historical archiving, the construction of historical displays and exhibits, the preservation and restoration of historic sites and structures, the editing of historical documents and journals, the operation of historical societies, and the production of historical media programs.

HST 4270 History and Film (3 q.h.)
Explores the manner in which filmmakers use historical subjects for their projects and the ways in which historians analyze

films as primary sources for research. Presents both dramatic and documentary films in combination with readings from various source and interpretive materials. This course meets for three hours each week. (Thematic Group D)

HST 4272 Topics in History on the Screen (3 q.h.)
Study of a topic or historical time period and how the topic or time period is portrayed in feature films. Students will study the topic and then compare the films with history. Films will be excerpted for class viewing; full-length films will be on reserve in the Library. Students may take this course more than once, provided that they focus on a different topic each time. (Thematic Group depends on subject of course.)

HST 4302 History of Flight and Space Travel (3 q.h.)
Beginning with the ancient Greeks' and Leonardo da Vinci's dreams of flight, the course traces the history of nonpowered flight from the balloon experiments of the Montgolfier brothers to contemporary hang-gliders; of powered flight from the Wright brothers through supersonic transport; and of rocketry and space travel from their beginnings through the *Enterprise*. (Thematic Group D)

HST 4401 Ancient Middle East (3 q.h.)
Study of ancient cultures and peoples in the Middle East to the rise of Islam. (Thematic Group G)

HST 4407 Ancient Greece (3 q.h.)
Origin and development of Greek civilization. (Thematic Group G)

HST 4408 Ancient Rome (3 q.h.)
Ancient Roman civilization, emphasizing the rise of the Republic and the decline of the Empire. (Thematic Group G)

HST 4410 The Middle Ages (3 q.h.)
History of Europe from the fall of Rome to 1350. (Thematic Group G)

HST 4414 History of the Early Christian Church (3 q.h.)
The history of Christianity from the time of Christ to 800, with attention to Jewish-Christians, St. Paul, and the Papacy. (Thematic Group G)

HST 4415 The Age of Luther, Calvin, and Loyola (3 q.h.)

Protestant and Catholic Reformations from intellectual, social, economic, political, and artistic perspectives from the later Middle Ages to 1648, with attention to historiography and conflicting interpretations. (Thematic Group G or H)

HST 4416 The Christian Church in Modern Times (3 q.h.)

History of Christianity after the mid-seventeenth century, with attention to the rise of Protestant denominations, the impact of the Enlightenment, and the conflict between fundamentalism and modernism. (Thematic Group H)

HST 4418 Renaissance Civilization (3 q.h.)

Renaissance in Italy and northern Europe, with attention to intellectual, religious, social, artistic, and economic developments and special emphasis on Renaissance art, literature, and science. (Thematic Group G or H)

HST 4423 Europe 1789-1870 (3 q.h.)

Europe from the French Revolution to the Franco-Prussian War, with a stress on the struggles for liberalism and nationalism. (Thematic Group H)

HST 4424 Europe 1870-1921 (3 q.h.)

Background of World War I, including nationalism, militarism, imperialism, and the alliance system, as well as the making of war and peace. (Thematic Group C)

HST 4425 Europe Since 1921 (3 q.h.)

Europe after World War I, World War II, the Cold War, and the efforts to unify the continent. (Thematic Group C)

HST 4435 Women in European History (3 q.h.)

Historical examination of the position and role of women in European life. (Thematic Group A or E)

HST 4446 Enlightenment and Romanticism (3 q.h.)

Examination of cultural history in Europe from the late seventeenth century to the first third of the nineteenth century, with attention to the process by which the Age of Romanticism replaced the Age of Enlightenment. (Thematic Group H)

HST 4452 The French Revolution and Napoleon (3 q.h.)

Examines the nature of the French Revolution and the era of Napoleon, with attention to their impact on France and Europe and with special attention to historiography, conflicting interpretations, and contemporary documents. (Thematic Group H)

HST 4455 Ireland Since 1800 (3 q.h.)

The Irish question in British politics from the Act of Union to the present. (Thematic Group C)

HST 4460 Germany from Weimar to Auschwitz (3 q.h.)

Examination of Germany's history from 1918 to 1945, with special attention to the brilliance of the Weimar cultural revolution and its later persecution by the Nazis, the appeal of Nazism and the Third Reich, the roots of anti-Semitism and racism, and World War II and the Holocaust. (Thematic Group C)

HST 4461 The Holocaust (3 q.h.)

Historical and sociological examination of the genocide perpetrated by the Nazis during World War II, its antecedents, theoretical and technological underpinnings, and mechanisms. Attention will also be paid to the attitudes and actions of the surrounding populations, of Germany's friends and enemies, and of the world since the end of that war. (Thematic Group C)

HST 4466 Eastern Europe Since 1500 (3 q.h.)

Examination of the salient historical factors that have driven the evolution of Eastern Europe from the Congress of Buda in 1500, which allied Poland and Hungary in anticipation of German and Russian encirclement, through the fateful year 1989, which introduced the end of the Iron Curtain and post-World War II domination by the Soviet Union. (Thematic Group C or H)

HST 4468 Russia Since 1917 (3 q.h.)

Russian domestic affairs and international relations from the revolutions of 1917 to the present, with special attention to the rise and ultimate fall of communism. (Thematic Group C)

HST 4473 Poland in the Twentieth Century (3 q.h.)

Examines forces leading to Poland's national resurrection in 1918 after more than a century of being a nation without sovereignty; the interwar years of reconstruction and consolidation; partition and near annihilation by Hitler and Stalin in World War II; Cold War engulfment by communism; Solidarity and the achievement of freedom. (Thematic Group C)

HST 4501 Native Americans (3 q.h.)

Survey of Native Americans from pre-Colombian times to the present. (Thematic Group A)

HST 4502 Colonial America (3 q.h.)

Topics include exploration and settlement of North America; the development of political, social, and economic institutions; and the international rivalry to 1763. (Thematic Group H)

HST 4503 The American Revolution (3 q.h.)

British-American relations after 1763; war and peace. (Thematic Group H)

HST 4511 Populism and Progressivism (3 q.h.)

Topical history of the United States from 1890 to 1920, concentrating on its reactions to industrialization and urbanization. (Thematic Group C)

HST 4512 The Age of Roosevelt (3 q.h.)

Topical history of the United States in time of world war, prosperity, depression, and war again. (Thematic Group C)

HST 4513 Contemporary America (3 q.h.)

The American people from the close of World War II to the present. (Thematic Group C)

HST 4523 American Diplomatic History (3 q.h.)

Selected topics in the history of American foreign relations and policy since 1789. (Thematic Group C or H)

HST 4531 American Business History (3 q.h.)

Examines the rise of business in America, the role of the corporation, horizontal and vertical combinations, business and labor, and business and government. (Thematic Group B, C, or H)

HST 4533 American Newspaper History (3 q.h.)

Newspapers in America from 1690 to the present, with emphasis on the transition from weeklies to dailies, the rise of the political press, the birth of penny papers, the rivalry of Pulitzer and Hearst, and forces making for standardization in the twentieth century. (Thematic Group B or C)

HST 4535 History of the American Film Industry (3 q.h.)

The production, distribution, and exhibition of feature films in America from the 1890s to the present, with emphasis on the development of studios in California, the rise and fall of the contract system, censorship, government regulation, and foreign investment. (Thematic Group B, C, or D)

HST 4536 American Radio History (3 q.h.)

Radio in America from the days of Marconi to the present, with emphasis on the coming of commercial stations, the rise of networks, government regulation, the golden age of radio programs, the impact of television, and the nature of radio at the end of the twentieth century. (Thematic Group B, C, or D)

HST 4537 American Television History (formerly HST 4306) (3 q.h.)

Examines the evolution of the medium from the 1920s to the present, with emphasis on the development of networks, programming, advertising, the impact of cable, and television's regulatory structure. (Thematic Group B, C, or D)

HST 4540 American Social History (3 q.h.)

Selected topics in the life of the American people since 1789. (Thematic Group B or E)

HST 4542 Women in American History (3 q.h.)

Historical examination of the position and role of women in American life. (Thematic Group B or E)

HST 4543 African-American History (3 q.h.)

History of African Americans from colonial times to the present. (Thematic Group A)

HST 4547 History of Sport in America (3 q.h.)

History of the major sports and their impact on American life. (Thematic Group B, C, or H)

HST 4548 American Heroes (3 q.h.)

Comparative exploration of the nature and functions of heroism in American history, using such individuals as George Washington, Jesse James, Amelia Earhart, Martin Luther King, and Bruce Springsteen as specific case studies. (Thematic Group B, C, or H)

HST 4550 Boston to 1822 (3 q.h.)

Study of the Town of Boston from its establishment in 1630 to 1822 and the development of political, economic, and social institutions. (Thematic Group H)

HST 4551 Boston Since 1822 (3 q.h.)

Study of the City of Boston, its annexations, and the changes in the ethnic nature of the population. (Thematic Group C)

HST 4559 Coming to America: The American Immigrant Experience (3 q.h.)

The peopling of the United States from the migration of Native Americans through the current period, emphasizing the diverse cultures that came, their reasons for coming, their reasons for settling in particular places, and the processes by which they resolved issues relating to "Americanization." (Thematic Groups A, C, or E)

HST 4563 History of Criminal Justice in America (3 q.h.)

The history of crime and punishment in America from colonial times to the present. (Thematic Group B, C, or H)

HST 4602 Contemporary Latin America (3 q.h.)

Social, economic, and political development of the Latin American republics in the twentieth century. (Thematic Group A or C)

HST 4603 The United States, Central America, and the Caribbean (3 q.h.)

Latin American countries nearest the United States and most affected by U.S. policies, particularly Cuba, Mexico, Nicaragua, El Salvador, and Guatemala. Emphasizes the historical background of current issues. (Thematic Group C)

HST 4604 Mexico Since 1848 (3 q.h.)

Political, economic, social, and cultural evolution of Mexico since the Mexican-American War. Other topics and issues include the Juarez *Reforma*, Diaz's dictatorship, the Revolution of 1910, and the on-going Institutional Revolution. (Thematic Group A or C)

HST 4605 The Atlantic Community, 1492-1700 (3 q.h.)

Studies the cultural impact of Early Modern Europe on the "new" world and the "new" world on Europe from the fifteenth through the seventeenth centuries. (Thematic Groups A, B, E, or H)

HST 4611 Africa Since 1885 (3 q.h.)

The European impact on Africa, the rise of African nationalism, and the emergence of independent African states and their relations with other nations. (Thematic Group A or C)

HST 4622 Modern Middle East (3 q.h.)

The Middle East since 1914, with attention to Zionism, Pan-Arabism, the effects of two world wars, and the postwar settlements. (Thematic Group A or C)

HST 4644 War and Peace in the Nuclear Age (3 q.h.)

The history of the nuclear age based on a Corporation for Public Broadcasting/Annenberg telecourse. By incorporating a variety of perspectives on the nuclear past—political, historical, philosophical, and scientific—the programs, lectures, and accompanying print materials provide students with a solid foundation of knowledge upon which they can base their views of the nuclear future. (Thematic Group C or D)

HST 4645 History of the Vietnam Wars (3 q.h.)

History of military conflict in Vietnam, with attention to the rise of the Viet Minh during World War II, the struggle against the French in the first Indochina War, the impact of the Cold War, and the involvement of the United States after 1950 in Laos and Cambodia (now Kampuchea) as well as in Vietnam. Emphasizes the role of communism and nationalism in Indochina and the motives for American intervention. Includes films revealing American reaction to the escalating conflict. (Thematic Group C)

HST 4646 The Legacy of the Vietnam Wars (3 q.h.)

Examines the impact of the American involvement in Vietnam on American foreign and domestic policy as well as on American attitudes toward themselves and toward the world in the period since 1975. Emphasis will be placed on post-war interpretations of that conflict, on its effects on American ideals, on ideas of military preparedness, on the economy, on popular culture, and on the "healing processes" that have marked the last decade. An assessment of the extent to which Vietnam continues to haunt the American people and the extent to which the country has put the experience behind it will be made and an agenda for future action set forth by the class. (Thematic Group C)

HST 4647 The World: 1900-1945 (3 q.h.)

An exploration of the history of the twentieth century from its beginnings to the end of the Second World War, emphasizing those political, economic, social, cultural, ecological, and epidemiological factors that influenced the course of global events during this tumultuous period. (Thematic Group C)

HST 4648 The World: 1945-Present (3 q.h.)

Offers a thematic study of issues and movements that have influenced the world's history since the end of the Second World War. Subjects include the Cold War, the end of colonialism, urbanization, technology and ecology, cultures and counter-cultures, the "global village," and the prospects for human liberation. (Thematic Group C)

HST 4650 Topics in European History (3 q.h.)

Topics may vary from year to year. Thematic Group designations will also vary.

HST 4651 Topics in American History (3 q.h.)

Topics may vary from year to year. Thematic Group designations will also vary.

HST 4652 Topics in "Third" World History (3 q.h.)

Topics may vary from year to year. Thematic Group designations will vary also.

HST 4653 Topics in Local History (4 q.h.)

Topics may vary from year to year. Thematic Group designations will also vary.

HST 4811 Honors Program 1 (4 q.h.)
Opportunity to undertake an in-depth research study project. See page 219 for details. *Prereq.* 96 q.h., 3.5 q.p.a.

HST 4812 Honors Program 2 (4 q.h.)
See HST 4811.

HST 4813 Honors Program 3 (4 q.h.)
See HST 4811.

HST 4815 Advanced Tutorial 1 (3 q.h.)
Opportunity to take an upper-level course independently. See page 219 for details. *Prereq.* 87 q.h.

HST 4816 Advanced Tutorial 2 (3 q.h.)
See HST 4815.

HST 4821 Field Work in History (6 q.h.)

Designed to enhance career development by allowing students to earn credit for the application of their academic backgrounds to practical problems in the workplace. See page 219 for details. *Prereq.* HST 4101, 4102, 4103, 4202, 4203, 4241, and Program Director's approval.

HST 4822 Independent Study 1 (3 q.h.)
Opportunity to undertake special research. See page 219 for details. *Prereq.* 96 q.h., 3.0 q.p.a.

HST 4823 Independent Study 2 (3 q.h.)
See HST 4822.

HST 4824 Independent Study 3 (3 q.h.)
See HST 4822.

INTERDISCIPLINARY

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INT 4125 College Success Seminar (1 q.h.)

A day-long seminar that introduces the tools, techniques, methods, procedures, skills, and resources necessary for success in college. Students are also introduced to the Academic Common Experience at Northeastern University. The text *Becoming a Master Student*, 8th edition, by Dave Ellis should be purchased before the class.

INT 4200 Workshop in Creativity (3 q.h.)

Thought processes that allow individuals to be creative or original in all areas of life. Through interactive exercises and special projects in composition and problem-solving, students can learn how to tap

their own creativity. Students are asked to create an original piece of art, music, literature, or research.

INT 4203 Independent Study in Cultural Heritage (3 q.h.)

Student will work one-on-one with a faculty member to complete a project he/she designs to study the interconnected ways in which art, music, literature, religion, and specific historical events have shaped our culture, values, and self-perceptions. Projects should deal with one or more themes in Cultural Heritage. *Prereq.* 27 q.h. in Cultural Heritage Studies or instructor's permission. Open only to Liberal Studies degree candidates admitted before Fall 1999.

INT 4305 Introduction to Liberal Studies (3 q.h.)

Students compile a portfolio of prior educational experiences, conduct self-assessment and goal-setting exercises, and put together a curriculum and degree completion plan as the final product of the course. The plan will contain the rationale for future course selections and outline a proposed plan of study leading to the bachelor's degree in liberal studies. Course must be taken before applying for the liberal studies degree.

INT 4310 Senior Project in Liberal Studies (3 q.h.)

This capstone course in the bachelor's degree in liberal studies integrates knowledge and abilities gained throughout the program. The course concludes with a detailed research project. Open only to liberal studies degree candidates.

INT 4400 Paralegal Studies (12 q.h.)*

This comprehensive certificate course, completed in one academic quarter, teaches a basic understanding of the law and responsibilities and duties of paralegal work. Practical workshop sessions and case study methods are used to teach the basics of probate, real estate, corporations, litigation, legal research, and legal ethics. Each subject area is taught by an attorney/paralegal team who are practicing professionals in that area of law. Attorneys teach the legal system and legal theory while paralegals focus on building skills that are applicable and relevant to paralegal work. The curriculum reflects the demands of a busy general law practice, and students who are considering law and paralegal work will receive instruc-

tion that will present the pace and atmosphere of a law office. The instructors are working professionals in their legal specialties. Students who complete all of the content areas of the program with at least a grade of B- will earn a certificate of successful completion. *Prereq.* 140 q.h., 3.0 q.p.a., and formal admission.

*This program is offered at a tuition rate different from University College's. Please call 617.373.7682 for more information and complete Paralegal brochure.

JOURNALISM

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JRN 4112 Writing for Media 1 (3 q.h.)

Introduction to how to write leads, organize basic news stories, gather facts, and interview. Analyzes news values and the structure of news organizations.

JRN 4113 Writing for Media 2 (3 q.h.)
Writing of multisource stories, both news and feature; public affairs reporting; advanced interviewing techniques; and legal issues. *Prereq.* JRN 4112 or instructor's permission.

JRN 4114 News Reporting Techniques (3 q.h.)
Introduction to writing in-depth stories requiring significant research and introduction to investigative reporting. Includes libel, privacy invasion, and other legal matters affecting news media. *Prereq.* JRN 4113 or instructor's permission.

JRN 4335 Public Relations Basics (3 q.h.)
Concepts, components, and methods of public relations, including planning and research, processes of influencing public opinion, and policies concerning corporate and institutional relations with the media and various publics.

JRN 4336 Public Relations Practice (3 q.h.)
Study of specific practices and techniques employed in public relations, especially in relation to the handling of information and organization of activities and events. Also discusses how to define PR "targets" and how to deal with such publics as employees, stockholders, and consumers.

JRN 4337 Public Relations Problems (3 q.h.)
Research and communication techniques used to solve public relations problems and practical experience with individual PR projects, programs, and campaigns.

JRN 4341 Mass Media and the Law (3 q.h.)
Examination of libel, privacy, protection of sources, and broadcast regulation. Conflicts between journalists and jurists over prior restraint, access to government information, and fundamental First Amendment issues also are discussed.

JRN 4349 Advertising Basics (3 q.h.)
Study of the evolution of advertising, including social, economic, and legal aspects; how advertising agencies and departments function; how advertising fits into the marketing mix; and the basic steps of research.

JRN 4350 Advertising Copywriting (3 q.h.)
Writing effective advertising copy for both print and electronic media; coordinating copy with other creative functions. Elements of good ad copy are analyzed and common pitfalls are reviewed.

JRN 4351 Advertising Practice (3 q.h.)
Study of media planning and selection. Includes defining objectives and determining target audiences; establishing the advertising budget; analyzing the market and the competition. *Prereq.* JRN 4349 or instructor's permission.

JRN 4480 Copyediting (3 q.h.)
Practice in the many facets of the editorial process, including editing copy, writing heads, and laying out pages. The course also includes photo selection, cropping, and outline writing. *Prereq.* JRN 4112.

JRN 4522 Magazine Writing (3 q.h.)
Practice in writing and freelancing magazine articles. Analysis of magazine markets, preparation of query letters, techniques of research, and submission of manuscript. Travel, how-to, profile, personal experience, and other popular and salable formats.

JRN 4815 Advanced Tutorial 1 (3 q.h.)
Opportunity to take an upper-level course independently. See page 219 for details.

JRN 4816 Advanced Tutorial 2 (3 q.h.)
See JRN 4815.

LANGUAGE — CHINESE

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LNC 4101 Elementary Chinese 1 (4 q.h.)
Designed to acquaint the student with features of spoken and written Mandarin Chinese. Stresses grammar, oral performance, and simple characters.

LNC 4102 Elementary Chinese 2 (4 q.h.)
Continues LNC 4101. Studies grammar and spoken and written forms of the language. *Prereq.* LNC 4101 or equiv.

LNC 4103 Elementary Chinese 3 (4 q.h.)
Continues LNC 4102. Studies grammar and spoken and written forms of the language. *Prereq.* LNC 4102 or equiv.

LNC 4104 Intermediate Chinese 1 (4 q.h.)
Continues LNC 4103. Covers more advanced features of the language as well as continued study of characters. *Prereq.* LNC 4103 or equiv.

LNC 4105 Intermediate Chinese 2 (4 q.h.)
Continues LNC 4104. Offers more advanced work in grammar, conversation, and characters. *Prereq.* LNC 4104 or equiv.

LNC 4106 Intermediate Chinese 3 (4 q.h.)
Continues LNC 4105. Offers more advanced work in grammar, conversation, and characters. *Prereq.* LNC 4105 or equiv.

LNC 4815 Chinese Advanced Tutorial 1 (4 q.h.)
Advanced Tutorial Option: When a student is unable to continue study of an upper-level language, or when a language course needed for a degree is not scheduled at appropriate intervals, arrangements can be made for the student to take three advanced tutorials for a total of 12 quarter hours. See page 219 for details. *Prereq.* 87 q.h.

LNC 4816 Chinese Advanced Tutorial 2 (4 q.h.)
See LNC 4815.

LNC 4817 Chinese Advanced Tutorial 3
(4 q.h.)
See LNC 4815.

LANGUAGE — FRENCH

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LNF 4101 Elementary French 1
(formerly Conversational French 1)
(4 q.h.)
Essentials of grammar, practice in pronunciation, and progressive acquisition of a basic vocabulary and idiomatic expressions.

LNF 4102 Elementary French 2
(formerly Conversational French 2)
(4 q.h.)
Continuation of grammar study, with oral and written exercises. *Prereq.* LNF 4101 or equiv.

LNF 4103 Elementary French 3
(formerly Conversational French 3)
(4 q.h.)
Reading of French prose of increasing difficulty, with written and oral exercises based on the materials read and practice in conversation. *Prereq.* LNF 4102 or equiv.

LNF 4104 Intermediate French 1
(4 q.h.)
Review of grammar, with practice in composition and conversation. *Prereq.* LNF 4103 or equiv.

LNF 4105 Intermediate French 2
(4 q.h.)
History of French civilization, with discussions and conversation. *Prereq.* LNF 4104 or equiv.

LNF 4106 Intermediate French 3
(4 q.h.)
Intensive reading of modern French prose, with practice in conversation. *Prereq.* LNF 4105 or equiv.

LNF 4815 French Advanced Tutorial 1
(4 q.h.)
Advanced Tutorial Option: When a student is unable to continue study of an upper-level language, or when a language course needed for a degree is not scheduled at appropriate intervals, arrangements can be made for the student to take three advanced tutorials for a total of 12 quarter hours. See page 219 for details. *Prereq.* 87 q.h.

LNF 4816 French Advanced Tutorial 2
(4 q.h.)
See LNF 4815.

LNF 4817 French Advanced Tutorial 3
(4 q.h.)
See LNF 4815.

LANGUAGE — GERMAN

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LNG 4101 Elementary German 1
(formerly Conversational German 1)
(4 q.h.)
Essentials of grammar, practice in pronunciation, and progressive acquisition of a basic vocabulary and idiomatic expressions.

LNG 4102 Elementary German 2
(formerly Conversational German 2)
(4 q.h.)
The more difficult points of grammar, particularly the uses of the subjunctive mood. *Prereq.* LNG 4101 or equiv.

LNG 4103 Elementary German 3
(formerly Conversational German 3)
(4 q.h.)
Reading of simple German prose, with oral and written exercises based on material read. Conversation in German is encouraged. *Prereq.* LNG 4102 or equiv.

LNG 4104 Intermediate German 1
(4 q.h.)
Review of grammar, with practice in composition and conversation. *Prereq.* LNG 4103 or equiv.

LNG 4105 Intermediate German 2
(4 q.h.)
History of German civilization, with discussions and conversation. *Prereq.* LNG 4104 or equiv.

LNG 4106 Intermediate German 3
(4 q.h.)
Intensive reading of modern German prose, with practice in conversation. *Prereq.* LNG 4105 or equiv.

LNG 4815 German Advanced Tutorial 1 (4 q.h.)
Advanced Tutorial Option: When a student is unable to continue study of an upper-level language, or when a language course needed for a degree is not scheduled at appropriate intervals, arrangements can be made for the student to take three

advanced tutorials for a total of 12 quarter hours. See page 219 for details. *Prereq.* 87 q.h.

LNG 4816 German Advanced Tutorial 2 (4 q.h.)
See LNG 4815.

LNG 4817 German Advanced Tutorial 3 (4 q.h.)
See LNG 4815.

LANGUAGE — ITALIAN

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LNI 4101 Elementary Italian 1
(formerly Conversational Italian 1) (4 q.h.)
Essentials of grammar, practice in pronunciation, and progressive acquisition of a basic vocabulary and idiomatic expressions.

LNI 4102 Elementary Italian 2
(formerly Conversational Italian 2) (4 q.h.)
Continuation of grammar study, with oral and written exercises. *Prereq.* LNI 4101 or equiv.

LNI 4103 Elementary Italian 3
(formerly Conversational Italian 3) (4 q.h.)
Reading of Italian prose of increasing difficulty, with written and oral exercises based on the material read. Practice in conversation. *Prereq.* LNI 4102 or equiv.

LNI 4104 Intermediate Italian 1 (4 q.h.)
Review of grammar, with practice in composition and conversation. *Prereq.* LNI 4103 or equiv.

LNI 4105 Intermediate Italian 2 (4 q.h.)
History of Italian civilization, with discussions and conversation. *Prereq.* LNI 4104 or equiv.

LNI 4106 Intermediate Italian 3 (4 q.h.)
Intensive reading of modern Italian prose, with practice in conversation. *Prereq.* LNI 4105 or equiv.

LNI 4815 Italian Advanced Tutorial 1
(4 q.h.)
Advanced Tutorial Option: When a student is unable to continue study of an upper-level language, or when a language course needed for a degree is not scheduled at appropriate intervals, arrangements can be made for the student to take three advanced tutorials for a total of 12 quarter hours. See page 219 for details. *Prereq.* 87 q.h.

LNI 4816 Italian Advanced Tutorial 2
(4 q.h.)

See LNI 4815.

LNI 4817 Italian Advanced Tutorial 3
(4 q.h.)

See LNI 4815.

LANGUAGE — JAPANESE

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LNJ 4101 Elementary Japanese 1
(formerly Conversational Japanese 1)
(4 q.h.)

Basic, practical Japanese, emphasizing the essentials of grammar, pronunciation, progressive acquisition of a core vocabulary, and the use of current, idiomatic expressions.

LNJ 4102 Elementary Japanese 2
(formerly Conversational Japanese 2)
(4 q.h.)

Continuation of LNJ 4101. Progressive acquisition of practical skills. *Prereq.* LNJ 4101 or equiv.

LNJ 4103 Elementary Japanese 3
(formerly Conversational Japanese 3)
(4 q.h.)

Continuation of LNJ 4102. *Prereq.* LNJ 4102.

LNJ 4104 Intermediate Japanese 1
(4 q.h.)

Review of grammar, with practice in composition and conversation. *Prereq.* LNJ 4103 or equiv.

LNJ 4105 Intermediate Japanese 2
(4 q.h.)

History of Japanese civilization, with discussions and conversation. *Prereq.* LNJ 4104 or equiv.

LNJ 4106 Intermediate Japanese 3
(4 q.h.)

Intensive reading of Japanese prose, with practice in conversation. *Prereq.* LNJ 4105 or equiv.

LNJ 4225 Japanese Culture (3 q.h.)

By studying various aspects of Japanese cultural history, education, work ethics, male-female relations, and other areas, students gain insight into the Japanese mentality and how this homogeneous race is surviving in a heterogeneous world.

LNJ 4815 Japanese Advanced Tutorial 1
(4 q.h.)

Advanced Tutorial Option: When a student is unable to continue study of an upper-level language, or when a language course needed for a degree is not scheduled at appropriate intervals, arrangements can be made for the student to take three advanced tutorials for a total of 12 quarter hours. See page 219 for details. *Prereq.* 87 q.h.

LNJ 4816 Japanese Advanced Tutorial 2
(4 q.h.)

See LNJ 4815.

LNJ 4817 Japanese Advanced Tutorial 3
(4 q.h.)

See LNJ 4815.

LANGUAGE — RUSSIAN

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LNR 4101 Elementary Russian 1
(formerly Conversational Russian 1)
(4 q.h.)

Essentials of grammar, practice in pronunciation, and progressive acquisition of a basic vocabulary and idiomatic expressions.

LNR 4102 Elementary Russian 2
(formerly Conversational Russian 2)
(4 q.h.)

Continuation of grammar study, with oral and written exercises. *Prereq.* LNR 4101 or equiv.

LNR 4103 Elementary Russian 3
(formerly Conversational Russian 3)
(4 q.h.)

Reading of Russian prose of increasing difficulty, with written and oral exercises based on the material read and practice in conversation. *Prereq.* LNR 4102 or equiv.

LNR 4225 Russian Culture and Society
(3 q.h.)

Study of various aspects of Russian cultural history, education, work ethics, male-female relations, and other areas, for insight into the Russian mentality.

LNR 4815 Russian Advanced Tutorial 1
(4 q.h.)

Advanced Tutorial Option: When a student is unable to continue study of an upper-level language, or when a language course needed for a degree is not scheduled at appropriate intervals, arrangements

can be made for the student to take three advanced tutorials for a total of 12 quarter hours. See page 219 for details. *Prereq.* 87 q.h.

LNR 4816 Russian Advanced Tutorial 2
(4 q.h.)

See LNR 4815.

LNR 4817 Russian Advanced Tutorial 3
(4 q.h.)

See LNR 4815.

LANGUAGE — SPANISH

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LNS 4101 Elementary Spanish 1
(formerly Conversational Spanish 1)
(4 q.h.)

Acquisition of basic oral skills by introduction of the essentials of Spanish grammar. Extensive practice in pronunciation and acquisition of an idiomatic core vocabulary.

LNS 4102 Elementary Spanish 2
(formerly Conversational Spanish 2)
(4 q.h.)

Continuation of LNS 4101. Introduces Spanish prose of moderate difficulty. *Prereq.* LNS 4101 or equiv.

LNS 4103 Elementary Spanish 3
(formerly Conversational Spanish 3)
(4 q.h.)

Continuation of LNS 4102. Continued stress on conversation, while building a solid vocabulary. *Prereq.* LNS 4102 or equiv.

LNS 4104 Intermediate Spanish 1
(4 q.h.)

Review of grammar, with practice in composition and conversation. *Prereq.* LNS 4103 or equiv.

LNS 4105 Intermediate Spanish 2
(4 q.h.)

Examination of Spanish civilization through texts of average difficulty. Intensive reading of modern prose, with occasional oral or written translation and conversation practice based on assigned readings. *Prereq.* LNS 4104 or equiv.

LNS 4106 Intermediate Spanish 3
(4 q.h.)

Examination of Spanish-American civilization through texts of average difficulty. Intensive readings of modern prose, with

occasional oral or written translations and conversation practice based on assigned readings. *Prereq.* LNS 4105 or equiv.

LNS 4200 Spanish for the Medical Professions (4 q.h.)

Students are introduced to the specialized discourse of the medical professions. The differences between oral and written language styles will be addressed, as well as the differing requirements for levels of style, ranging from informal to formal.

LNS 4815 Spanish Advanced Tutorial 1 (4 q.h.)

Advanced Tutorial Option: When a student is unable to continue study of an upper-level language, or when a language course needed for a degree is not scheduled at appropriate intervals, arrangements can be made for the student to take three advanced tutorials for a total of 12 quarter hours. See page 219 for details. *Prereq.* 87 q.h.

LNS 4816 Spanish Advanced Tutorial 2 (4 q.h.)

See LNS 4815.

LNS 4817 Spanish Advanced Tutorial 3 (4 q.h.)

See LNS 4815.

MANAGEMENT

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MGT 4101 Introduction to Business and Management 1 (3 q.h.)

Study of the setting and general structure of American business, including objectives and practices affecting the American standard of living. Examines the characteristics of private enterprise and the nature and challenge of capitalism and other forms of economic enterprise. Introduces types of businesses, the structures of organizations, and the functions of management as well as what a managerial career involves, what problems must be faced, and what decisions must be reached.

MGT 4102 Introduction to Business and Management 2 (3 q.h.)

Methodologies in planning, organizing, direction, and controlling production, marketing, sales, and pricing within the American free-enterprise system and in contrast to other business systems. Exam-

ines techniques for coping with the intricacies of systems management. *Prereq.* MGT 4101.

MGT 4103 Introduction to Business and Management 3 (3 q.h.)

Basic management concepts and techniques necessary to successful decision-making. Emphasizes management as a continuous, active process by introducing methods of designing an organization; understanding and dealing with people; evaluating the political, social, and economic environment; and effectively planning, directing, and controlling an organization. *Prereq.* MGT 4102.

MGT 4105 Introduction to Business and Management (Intensive) (6 q.h.)
Same as MGT 4101 and MGT 4102.

MGT 4110 Survey of Business and Management (4 q.h.)

This course offers an introduction to the setting and general structure of American business, the characteristics of private enterprise, and the nature and challenge of capitalism and other forms of economic enterprise. The forms of business, the structure of organizations, and the function of management are discussed in the context of their influence on the various forms of business. Through lecture and class discussions, the student is given an overview of the methodologies used in planning, organizing, directing, and controlling the functions of production, marketing, sales, pricing, and finance. *For SGS students only.*

MGT 4317 The Business of Consulting (3 q.h.)

Covers the essential elements needed to establish a successful consultant enterprise. Examines the skills, aptitudes, and experience required by the prospective consultant. Expands the strategies and methodologies used by consultants in conducting client assignments. Explores the differences in conducting client assignments in the public, private, industrial, service, and nonprofit sectors. *Not open to students who have completed CD 4117 and CD 4118 or CD 4119.*

MGT 4320 Managing Change (3 q.h.)

Application of managerial concepts and practices to real-world situations with policy or resource constraints. Explores decision making related to the impact of change on the organization and its per-

sonnel, develops a conceptual framework for handling change in one's own business career. *Prereq.* MGT 4102.

MGT 4323 Management and Leadership (formerly Motivation Management) (3 q.h.)

Designed to help students differentiate between the managerial position as such and a leadership role, evaluating the impact of leadership and management styles on human behavior. Introduces and analyzes important motivation concepts through study of the working environment and the processes that influence both performance and outcome. *Prereq.* MGT 4102.

MGT 4348 Introduction to the Global Marketplace (3 q.h.)

This course explores the characteristics of international trade and business, industrial/economic/political realities, organizational ownership and structure, and cultural dimensions. Students gain important perspectives on handling international personnel, operations, and marketing functions. Classes use real-world examples of management success and failure in international areas.

MGT 4357 Cultural Issues in International Business (3 q.h.)

When a U.S. company opens an office in a foreign land, cultural clashes may occur. How does management cope and help its employees to cope with these differences? This course examines the problems of doing business in another country, including developing nations.

MGT 4358 Today's Management Issues (3 q.h.)

Study business and management issues affecting today's management decisions. Includes changes in our economic system and the economy; corporate culture; social responsibility; ethics; workers' needs, motivation, and satisfaction; demographics; and management-labor interactions. *Prereq.* MGT 4102.

MGT 4365 The Business Management Puzzle 1 (3 q.h.)

A business is very much like a jigsaw puzzle. There are many facets of a business that make up the complete picture. The Business Management Puzzle exposes participants to the various pieces that comprise the "puzzle" and lays the groundwork necessary to develop effective

strategic business and financing plans that will increase the likelihood of receiving the funds required to launch a successful endeavor.

**MGT 4370 Entrepreneurship/
Intrapreneurship (3 q.h.)**

This course provides students with an in-depth look into this increasingly popular career path. Participants will explore the characteristics and skills that lead to successful entrepreneurial endeavors. Participants will also learn how to critically evaluate ideas in terms of their potential business merit. In addition, the role of entrepreneurship/intrapreneurship within the corporate umbrella will also be examined, as will the benefits and limitations of franchising. This course will also identify the dilemmas of a family business and the opportunities for women and minorities.

**MGT 4371 Building a Profit Stream
(3 q.h.)**

In today's free-enterprise and entrepreneurial environment, the building of a profit stream is critical to the survival of the small business. A key facet of achieving this status is an objective assessment of revenue potential. Understanding the customer's needs, reaching prospective customers, and creating an environment that encourages buying will be primary topics of this course. Understanding the cost structure and variables that affect the small business are essential to making appropriate marketing decisions. Finally, this course will examine key control areas of a small business. Participants will be required to develop a marketing plan for an existing or prospective small business.

**MGT 4372 Using Technology in a Small
Business (3 q.h.)**

Most of today's small businesses rely on modern technology to maintain their success. This course will teach participants how to utilize computers as a business tool. Participants will learn how to use computers for make or buy decisions, pricing strategies, financial performance evaluation, control, performance tracking, economic order quantities, and budgets. In addition, the use of e-mail, video conferencing, pagers, and the Internet will be discussed in terms of their use as business tools. Participants will be required to develop a technology plan for a present or prospective small business. Only a very basic level of computer knowledge is required for this course.

**MGT 4373 Planning for New Ventures
(3 q.h.)**

Research indicates that there is a strong correlation between good planning and a successful small business. Unfortunately, too few small businesses are making use of good planning techniques. This course gets participants involved in all levels of the planning process, including marketing and production plans, financial plans, and strategic plans. In addition, the steps involved in implementation will also be explored. Participants will also learn to conduct a competitive analysis and will be required to develop and present an actual business plan.

**MGT 4374 Growing the Ongoing
Venture (3 q.h.)**

All too often, too much emphasis is on starting a new venture and too little emphasis is placed on the growth aspects of a small business. Maintaining and growing a business requires a different set of skills than starting a new venture. Topics will include expanding markets, raising additional funds, and delegating management responsibilities. An assessment of the role of mergers, acquisitions, and alliances will be discussed. Participants will be required to develop a growth strategy for an existing business.

**MGT 4375 The Business Management
Puzzle 2 (3 q.h.)**

This course is a continuation of The Business Management Puzzle 1. Participants will gain an appreciation for the "total picture" of a viable, growing business venture. Participants will be required to present their strategic plans to a financing review committee that may even consider providing the financing you seek.

**MGT 4410 Project Management
Process: Planning and Implementation
(Reserved) (formerly Project Planning and
Control) (3 q.h.)**

The entire process of implementing a project, from project definition to the evaluation of feasibility, scheduling, and financial and budgetary factors. Management techniques and requirements are used in case analyses, along with the concept of using computer software to help oversee projects. *Prereq. OM 4301 or OM 4404 and 80 q.h.*

**MGT 4446 International Business
Management and Operations (Reserved)
(formerly MGT 4456) (3 q.h.)**

Principles and practices of international business, comparing domestic and international business activities, responsibilities, and influences. Explores the economic, social, political, and legal contexts of conducting business in a multinational environment and examines how the "foreign" factor in the business equation influences behavior. *Prereq. MGT 4102.*

**MGT 4450 Business Policy 1 (Reserved)
(3 q.h.)**

For advanced students building on all previous management courses and on numerous functional and procedural courses. Examines the total management process for formulating business strategy. Covers the development of corporate objectives, plans, and policies, emphasizing the interaction between the enterprise and its environment, both national and international. The economic and social responsibilities of business and managers are also considered. *Prereq. 130 q.h. and completion of all core business courses in your major or minor.*

**MGT 4451 Business Policy 2 (Reserved)
(3 q.h.)**

Study of organizational and administrative methods for converting plans into achievements. Explores concepts of strategic planning and implementation from the perspective of the general manager, with attention to top management functions, responsibilities, styles, values, and organizational relationships. Includes cases from profit and nonprofit enterprises of various types. *Prereq. MGT 4450.*

**MGT 4452 Business Policy Intensive
(Reserved) (6 q.h.)**

Same as MGT 4450 and MGT 4451. *Prereq. 130 q.h. and completion of all core business courses in your major or minor.*

**MGT 4455 Manager and Society
(Reserved) (3 q.h.)**

For managers, potential managers, and others interested in the national and international issues confronting business and industry in their relationships with governments, societies, and individuals. Includes issues of changing work environments and the variety of influ-

ences and pressures that need to be taken into account when making socially responsible business decisions. *Prereq.* MGT 4102.

MGT 4600 Honors Program 1 (4 q.h.) Opportunity to undertake an in-depth research study project. See page 219 for details. *Prereq.* 96 q.h., 3.5 q.p.a.

MGT 4701 Independent Study 1 (3 q.h.) Opportunity to undertake special research. See page 219 for details. *Prereq.* 96 q.h., 3.0 q.p.a.

MGT 4702 Independent Study 2 (3 q.h.) See MGT 4701.

MGT 4800 Advanced Tutorial 1 (3 q.h.) Opportunity to take upper-level course independently. See page 219 for details. *Prereq.* 87 q.h.

MGT 4801 Advanced Tutorial 2 (3 q.h.) See MGT 4800.

MANAGEMENT INFORMATION SYSTEMS

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Please note: Computer labs for students' completion of projects are available at Main Boston, Batterymarch, Burlington, and Dedham campus locations. Students may also complete projects on any IBM or IBM-compatible computer available to them.

MIS 4114 Introduction to PC Software (3 q.h.) Introduction to PC-based office automation and decision support software utilizing Microsoft Office. The focus of the class is on Windows NT, Microsoft Word, Microsoft Excel, and Microsoft Powerpoint. Course consists of in-class demonstration by instructor and out-of-class hands-on assignments. *Not open to students who have taken MIS 4101, MIS 4102, or MIS 4103.*

MIS 4115 Introduction to Computers and Information Systems (3 q.h.) Introduction to data processing concepts and computers, including an overview of data processing history, computer hardware, including configurations of personal

computers, and larger computer systems, systems development life cycle, the use of computers for specific business applications, and data communications concepts. *Not open to students who have taken MIS 4101, MIS 4102, or MIS 4103.*

MIS 4116 Introduction to PC Software and Information Systems Intensive (6 q.h.) Same as MIS 4114 and MIS 4115.

MIS 4210 Business Programming Logic (3 q.h.) This course introduces the student to the discipline of creating logical solutions to business programming problems, using flowcharts, hierarchy charts, and pseudocode techniques. Emphasis is placed on the development of algorithms that could be coded into computer programs using a programming language such as COBOL, BASIC, or "C." An overview of computer terminology is covered. *Prereq.* MIS 4102 or MIS 4114 and MIS 4115 or equiv.

MIS 4221 COBOL Programming 1 (3 q.h.) Beginning computer problem-solving and programming using COBOL. Includes structured flow-charting and programming, basic concepts, COBOL divisions and verbs, multi-page reporting, report totals, and logical control breaks.

MIS 4222 COBOL Programming 2 (3 q.h.) Continuation of MIS 4221. Includes table handling (subscripting and indexing), internal sort concepts (using, giving, input and output procedures), mass storage concepts (access methods, index file processing, random, and dynamic), and sequential and random file updating. *Prereq.* MIS 4221.

MIS 4231 COBOL Intensive A (6 q.h.) Same as MIS 4221 and MIS 4222.

MIS 4235 Advanced COBOL Programming (3 q.h.) Several advanced programming disciplines and techniques for the COBOL programmer. Includes string and unstring, cell subroutines, multi-dimension tables, advanced index file processing, debugging techniques, and communications. Students work on major business projects, prepare and test several programs. *Prereq.* MIS 4222.

MIS 4236 Advanced PC Software (3 q.h.) Use of spreadsheets for charting, decision support, and scenario planning. Development of database tables, table relationships, queries, reports, and forms. Use of graphics for presentations. Class focus is on Microsoft Excel and Microsoft Access. Includes lectures, in-class demonstrations, and extensive assignments that apply skills. *Not for the first-time personal computer user. Prereq.* MIS 4102 or MIS 4114 or equiv.

MIS 4238 Introduction to the Internet (3 q.h.) Introduction to the tools and techniques necessary to effectively utilize the Internet. Topics covered include electronic mail (EMAIL); remote-site connection via Telnet; NEWSGROUPS and LISTSERVERS; location and retrieval of data with Gopher, file transfer protocol (FTP); and the World Wide Web (WWW) and its two most important browsers, Internet Explorer and NETSCAPE. *Prereq.* Ability to use a MAC or a Windows-based personal computer.

MIS 4239 HTML/CGI Programming (3 q.h.) This course develops the fundamentals of web page/site development by exploring three basic Web components: HyperText Markup Language (HTML), Common Gateway Interface (CGI), and the HyperText Transfer Protocol (HTTP). The course first focuses on the HTML programming language and then expands to advanced HTML programming techniques, which incorporate text/font formatting, tables, image maps, audio, forms, and frames. The focus then shifts to interactive Web pages and explores Common Gateway Interface (CGI) scripting techniques based on Perl and C. Finally, to complete the trilogy, the HyperText Transfer Protocol (HTTP) specification will be introduced as preparation for more advanced courses in Web site development. Students will create several Web pages, using HTML and CGI scripts and will also write a simple HTTP routine. *Prereq.* MIS 4238.

MIS 4241 Programming in BASIC 1 (3 q.h.) Introduction to computer programming using BASIC. Includes arithmetic operations, variables, expressions, arrays, func-

tions, and formatted printing. Students write, debug, and run a number of programs on the computer. *Prereq. MIS 4102 or MIS 4114 and MIS 4115.*

MIS 4242 Programming in BASIC 2 (3 q.h.)

Continuation of MIS 4241. Covers more sophisticated BASIC programming techniques. Includes subroutines, nested loops, sorting, and file handling. Students write, debug, and run a number of programs on the computer. *Prereq. MIS 4241.*

MIS 4243 Visual Basic Programming (3 q.h.)

An introduction to developing Windows applications using the Visual Basic programming environment. The course covers the essentials of forms, objects and properties, controls and dialogs, and event-driven programming. Text and graphics processing, file-handling, and user interface design; the basics of object-based programming, and the use of the grid and data controls. *Prereq. Prior programming experience.*

MIS 4244 Advanced Visual Basic (3 q.h.)

Continuation of MIS 4243. Course covers advanced programming topics, using the object-oriented language Visual Basic. Students learn how to create and run database, word processing, and spreadsheet applications, using Visual Basic. Students create graphics to interface with other software applications. *Prereq. MIS 4243.*

MIS 4245 Net Security and Legal Issues (3 q.h.)

The rapidly expanding role of the Internet in conducting business activities has raised a number of legal and ethical concerns ranging from protection of intellectual property to confidentiality. Students will learn various strategies for coping with these issues, as well as the tools available to safeguard the organization, such as passwords, firewalls, and other means of access limitation. *Prereq. MIS 4236 and MIS 4238.*

MIS 4246 Web Management (3 q.h.)

This course examines the complexities of managing a company's intranet and Internet from initial needs assessment to maintenance of the network. Through a combination of classroom instruction and

research, students will learn to evaluate hardware and software options, as well as how to determine appropriate training and outsourcing requirements. Additional topics include compatibility, documentation, and future trends. *Prereq. MIS 4238.*

MIS 4247 Web Publishing with FrontPage (3 q.h.)

This course provides individuals with a relatively fast and simple way to create basic Web sites. Students learn how to develop Web pages using Microsoft's FrontPage. Basic design considerations will be explored along with the benefits and limitations inherent in using editing tools. Topics will include utilizing templates, developing links, creating site maps, and using basic HTML for enhancement and refinement. *Prereq. MIS 4238.*

MIS 4255 Electronic Commerce (3 q.h.)

Examines the issues involved in bringing the full range of business transactions to the Internet and World Wide Web. Explores the advantages and implications of on-line commerce, such as transacting business directly between consumer and supplier with no intermediaries and no national border, universal mediums of exchange, public transfer of private information, and electronic payment methods. Topics include on-line ordering, EDI, transaction security, and digital currencies. *Prereq. MIS 4238 and MKT 4301.*

MIS 4273 PC DOS (3 q.h.)

Introduction to the Disk Operating System (DOS), a collection of programs that manages the activities among personal computer components. Students have the opportunity to write one or more DOS batch routines. *Prereq. MIS 4102 or MIS 4114 and MIS 4115.*

MIS 4276 C Programming 1 (3 q.h.)

Fundamentals of the C programming language, I/O operations, arithmetic operations, loops, arrays, character strings, functions. Structures, file organization (text files, random access files). Pointers, queues, stacks, rings, binary trees. *Prereq. Prior programming experience.*

MIS 4277 C Programming 2 (3 q.h.)

Advanced programming techniques using C: recursion, address arithmetic, the preprocessor, pointers vs. multidimensional arrays, pointers to functions, macros, nested structures, unions, file merging and sorting techniques, linked lists, com-

mand line arguments, binary trees, operations on bits, enumerated data types. *Prereq. MIS 4276.*

MIS 4278 C++ for C Programmers (3 q.h.)

OOP, ADT, objects, encapsulation, polymorphism, inline functions, member and friend functions, private, protected and public members of classes, constructors, destructors, operator overloading, impure vs. pure virtual functions, base classes, virtual base classes, derived classes, C++ I/O Library, inheritance, multiple inheritance, manipulators, various data structures including multikey trees. *Prereq. MIS 4277. A C programming proficiency test is given at the first class meeting.*

MIS 4279 C Programming 1 and 2 Intensive (6 q.h.)

Same as MIS 4276 and MIS 4277.

MIS 4282 Operating Systems Overview (3 q.h.)

Designed to introduce the student to the most frequently used operating systems—UNIX, PC-DOS, and Windows NT. Through class lectures, reading assignments, and hands-on lab exercises, the student will examine the overall structure, genealogy, and basic commands of the three systems. *Prereq. MIS 4102 or MIS 4114 and MIS 4115.*

MIS 4283 Introduction to Windows Programming (3 q.h.)

An introduction to object-oriented Windows programming using Visual C++. After an overview of the Visual C++ environment, the course examines those elements common to most Windows programs, including menus and dialogs, text and graphics output, file processing, and printing. Additional topics covered include database access and the use of ActiveX controls. *Prereq. A strong background in C programming and some knowledge of C++.*

MIS 4285 Web Publishing (3 q.h.)

This course covers all the essential aspects of publishing on the Web, including the actual creation of pages using JavaScript. Students will learn the use of design that is well crafted and effective in using the power of the Web to convey the organization's message. Special emphasis will be placed on tasteful construction, coherence, and theme. *Prereq. MIS 4238 and MIS 4239.*

MIS 4286 JAVA Programming (3 q.h.) Students will learn the fundamentals of the JAVA programming language, including how to write, debug, and execute JAVA programs. The course covers object-oriented programming techniques, as well as, creating JAVA applets and applications. Programming exercises make use of JAVA's Abstract Window Toolkit (AWT). Other topics covered include using threads, multimedia techniques, animation, audio, and exception handling. Students will also learn how to write and incorporate applets into Web pages. *Prereq. MIS 4239 and MIS 4285.*

MIS 4287 Advanced JAVA Programming (3 q.h.) This course will focus on applets, AWT, graphics, event handling, images, JAVA IO, sequential files, random access files, networking, utility classes, hashtables, string tokenizer, operations on bits. *Prereq. MIS 4286.*

MIS 4288 Multimedia 1 (3 q.h.) This course introduces the student to the use of multimedia technology in Web site development. Once a brief history of multimedia is completed, the course then focuses on giving the student a firm understanding of the basic components of multimedia: text, audio, graphics, video, and interactive computing. Both technical and design aspects will be examined for each component. As each topic is explored, the student will develop appropriate presentations to demonstrate the techniques involved. *Prereq. MIS 4239 and MIS 4285.*

MIS 4289 Multimedia 2 (3 q.h.) This course introduces the student to advanced Web site multimedia techniques, such as animation and virtual reality, explores the development tools that are currently used in multimedia, and then examines the use of multimedia in CD-ROM applications. In addition, the design requirements of user interfaces are discussed. The student will prepare appropriate assignments to gain experience in techniques involved. *Prereq. MIS 4288.*

MIS 4290 Operating Systems Technology (3 q.h.) Students will utilize customized code to manipulate, create, and organize files, regardless of the operating system platform. Error-level return codes will be captured

and utilized to gain maximum use of existing commands. System defaults for buffers, files, and environment variables will be discussed and improved upon. Analysis of disk file structure, the file allocation table, and the dynamics of the directory structure with references to the attribute byte will be studied and coded. Modifications to `autoexecu.bat` and `config.sys` will be implemented.

MIS 4301 Structured Systems Analysis and Design 1 (3 q.h.) Systems analysis and design cycle, with emphasis on the analysis phase. Includes the history and life-cycle of business information systems, the role of the systems analyst, analytical tools useful to the systems study process, development of feasibility studies, and presentation of study phase findings. *Prereq. MIS 4102 or MIS 4114 and MIS 4115 and prior programming experience.*

MIS 4302 Structured Systems Analysis and Design 2 (3 q.h.) Continuation of MIS 4301. Emphasizes the design phase and systems implementation. Includes detailed systems design procedures and techniques, system testing, specification and procedure writing, documentation, design of auditing and control procedures, performance measurement techniques, hardware and software selection and planning, and project management. *Prereq. MIS 4301 or MIS 4401.*

MIS 4305 Structured Systems Analysis and Design (Intensive) (6 q.h.) Same as MIS 4301 and MIS 4302. *Prereq. prior programming experience.*

MIS 4307 Communications and Networking (3 q.h.) Communications, networking, and distributed processing from the user's rather than the designer's point of view. Includes the economics of distributed processing, communications concepts, local-area networks, and vendor selection. *Prereq. MIS 4302 or MIS 4402.*

MIS 4321 UNIX 1 (formerly UNIX for C Programmers) (3 q.h.) Designed to provide an understanding of the UNIX operating system. Through reading assignments, lectures, and lab exercises, the students will focus on the following topics: files, text manipulation, editors, programming tools, comprehen-

sive coverage of UNIX utilities, e-mail, and intermediate-level shell programming. *Prereq. MIS 4282 and MIS 4276.*

MIS 4322 UNIX 2 (formerly UNIX Shell Programming) (3 q.h.) Designed to provide a comprehensive study of shell programming, including C shell programming, a knowledge of the more advanced UNIX utilities like `sed` and `awk`, and a survey of the Internet tools, like `finger`, `rlogin/telnet`, `ftp`, `whois`, `netfind`, `gopher`, `archie`, World Wide Web, WAIS, USENET news, on-line communications, and anonymous e-mail. *Prereq. MIS 4321.*

MIS 4323 UNIX Intensive (6 q.h.) Same as MIS 4321 and MIS 4322.

MIS 4324 UNIX Networking (3 q.h.) This course focuses on developing a firm foundation for the student in the UNIX networking mechanisms that are incorporated in connection to Internet and intranet sites. A primer on the UNIX-model, file structures, and inter-process control mechanisms is followed by an analysis of TCP/IP, HTTP, and other communication protocols that are used in Internet/intranet networks. The client/server model will then be analyzed and integrated with these UNIX-based mechanisms. Finally, control and security issues, such as firewalls, cookies, secured links, etc., will be discussed. The student will implement several networking scripts. *Prereq. UNIX 2 and C Programming.*

MIS 4342 Advanced Database (3 q.h.) Focuses on designing a database for use in a relational database management system. Includes creating queries, linking files, cross-indexing, designing forms and reports, and other advanced database techniques. Introduces the entity-relationship model. Requires implementing an application program. *Prereq. MIS 4236.*

MIS 4346 SQL: Introduction to Structured Query Language (3 q.h.) Introduction to SQL, an application language for relational databases, such as Foxpro, dBase, and Access, is the natural follow-on to the database techniques learned in MIS 4236. SQL is the language that runs behind the windows the user typically sees when using a database package. SQL programs give the user an opportunity to create applications that provide greater flexibility and control over

data manipulation requirements. The course will cover data table creation/access, indexing, arithmetic operations, loops, arrays, multiple table processing, I/P operations, data type conversions, printer control, and report generation. Includes lectures, in-class exercises, and extensive assignments. *Prereq. MIS 4236. MIS 4342 is recommended but not required.*

MIS 4347 Desktop Publishing for the PC (3 q.h.)

Covers text and graphics for brochures and business packages. Includes desktop terminology, software, and document creation. Also covers graphs and charts (bar, line, area, pie) and explores the draw/annotate feature. *Not open to students who have completed MIS 4344.*

MIS 4351 Introduction to Cold Fusion (3 q.h.)

An introduction to developing Web-based applications using the Cold Fusion programming environment. The course covers the essentials of connecting data sources, using the CFML language, for presentation through a Web interface. Topics covered include retrieving and updating data, creating forms, creating search interfaces, publishing and maintaining data through the Web. *Prereq. MIS 4239.*

MIS 4360 Computer Privacy and Security (3 q.h.)

Covers threats to companies and individuals when information technology is incorrectly protected or intentionally compromised. Includes actual case studies of computer information abuse, preventive controls, and ongoing information protection techniques. Data encryption, password controls, and information security awareness issues are discussed. *MIS 4102 or MIS 4114 and MIS 4115.*

MIS 4370 Object-Oriented Intelligent Databases (3 q.h.)

This course first examines object-oriented data structures and database sites in order to give the student a strong foundation in cross-platform object-oriented database methodology. The concept of intelligent databases will then be developed and will be evaluated using current database products. Finally, the focus will expand into an analysis of cross-platform development tools. The student will design and build an object-oriented database and then ex-

amine the development tools available to build client/server applications upon this database. *Prereq. C++, Advanced Database, and SQL.*

MIS 4390 Project Management for Information Systems (3 q.h.)

Examines the total project management process for an information systems project, from feasibility analysis and project planning through post-implementation evaluation. Includes identifying tasks and task interdependencies, estimating activity times and resource requirements, PERT/CPM, and human resources management techniques. Covers tools and techniques for managing IS projects for PC-based and large-scaled transaction processing systems. Students will plan a project of their choice using project management software. *Prereq. MIS 4114.*

MIS 4395 Information System Disaster Prevention and Recovery (3 q.h.)

Examines the scope of possible disasters that could occur in information systems from LANs to large computer and telecommunications operations centers, from deliberate sabotage to accidents, to acts of nature. Includes identifying threats and analyzing risks, testing for vulnerability, and detecting intruders. Examines computer network security topics, including cryptography, access control, standard architectures and protocols, and virus protection. *Prereq. MIS 4302 or MIS 4390.*

MIS 4398 Network System Administration (3 q.h.)

A network operating system course designed to provide an in-depth understanding of computer server functionality. The natural flow from server installation, configuration files, command line utility messages, logs, and remote consoles through troubleshooting, user security, and control will be discussed. *Prereq. MIS 4307.*

MIS 4445 Database Management Systems (Reserved) (3 q.h.)

Introduction to the database approach to design of integrated information applications. Covers the three methods of database design; data structures; diagramming; data definition languages; data manipulation languages; database implementation and evaluation; and the role of the database administrator. *Prereq. MIS 4222, MIS 4236, MIS 4302 or MIS 4402 or the equivalent and 80 q.h. or MIS 4402.*

MIS 4446 Information Systems for Management (Reserved) (3 q.h.)

Students learn how information technology (IT) supports corporate goals. Emphasis is on the management of IT rather than on computer technology or programming. Readings and case studies will illustrate how IT may be employed to support general management functions. Issues such as the types of information systems, the impact of information systems on individuals and organizations, outsourcing, and the use of IT as a weapon of competitive strategy will be discussed along with technological issues such as database management systems, electronic data interchange, decision support systems, and expert systems. *Prereq. MIS 4102 or MIS 4116. (Not open to students who have taken MIS 4448.)*

MIS 4475 Electronic Commerce Strategy (3 q.h.)

Examines the Internet and related technologies as a means of creating new models for business success. Begins with a managerially-oriented technological overview to introduce the student to e-commerce. Focuses on how a company may develop strategic Internet plans that leverage new capabilities to alter and improve internal and external functions and activities, including communication, advertising, order processing and order fulfillment (transactions, billing distribution, and collection). Will study how companies use the Web, Extranets, and Intranets to re-engineer relationships with external and internal constituents, including customers, suppliers, distributors, dealers, strategic partners, regulators, and departments within the company. E-commerce activities include both business-to-consumer communication and transactions as well as business-to-business activities. Limitations and future capabilities will also be explored. *Prereq. MIS 4255.*

MIS 4485 Applied MIS Development Project (Reserved) (3 q.h.)

Capstone systems course integrates knowledge and abilities gained through other computer-related courses in the curriculum, within a comprehensive systems development project. The student has a choice of two options. Option I is a systems analysis and system design of a small system, which is usually personal computer-based. This includes the topics covered in MIS 4305 or MIS 4405 and

requires the programming of two or three programs from the system designed. The final product is a complete system with operational programs. Option II is a detailed research project. The topic is selected by the student, approved and the scope defined by the instructor. The final product is a paper that covers the selected topic from various viewpoints. *Prereq. MIS 4446.*

MIS 4600 Honors Program 1 (4 q.h.)
Opportunity to undertake an in-depth research study project. See page 219 for details. *Prereq. 96 q.h., 3.5 q.p.a.*

MIS 4601 Honors Program 2 (4 q.h.)
See MIS 4600.

MIS 4602 Honors Program 3 (4 q.h.)
See MIS 4600.

MIS 4701 Independent Study 1 (3 q.h.)
Opportunity to undertake special research. See page 219 for details. *Prereq. 96 q.h., 3.0 q.p.a.*

MIS 4702 Independent Study 2 (3 q.h.)
See MIS 4701.

MIS 4703 Independent Study 3 (3 q.h.)
See MIS 4701.

MIS 4800 Advanced Tutorial 1 (3 q.h.)
Opportunity to take upper-level course independently. See page 219 for details. *Prereq. 87 q.h.*

MIS 4801 Advanced Tutorial 2 (3 q.h.)
See MIS 4800.

MARKETING

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MKT 4301 Introduction to Marketing 1 (3 q.h.)
This course consists of lectures, readings, and small group discussions on the role of marketing in contemporary society, in the business enterprise, and in the nonprofit organization. Consideration is given to the planning, operation, and evaluation of marketing and promotional efforts necessary to the effective marketing of consumer and industrial products and services in both profit and nonprofit organizations.

MKT 4302 Introduction to Marketing 2 (3 q.h.)

Continuation of MKT 4301. Develops the link between marketing theory and practice. Covers specific marketing issues and problems. Includes current marketing issues. *Prereq. MKT 4301.*

MKT 4304 Introduction to Marketing (Intensive) (6 q.h.)

Same as MKT 4301 and MKT 4302.

MKT 4305 Internet Marketing (3 q.h.)

Course focuses on how to integrate Internet tools into a strategic marketing plan. Covers the differences between Internet marketing and other approaches. Includes topics on Internet demographics, e-mail and discussion groups as information gathering and publicity tools, creating an electronic storefront, and designing a Web page. Students are required to write a marketing plan that utilizes appropriate Internet tools as a final project. *Prereq. MIS 4238 and MKT 4301.*

MKT 4308 Direct Response Marketing (3 q.h.)

Direct response marketing communicates directly with the prospective customer to create an immediate response. Topics include management of direct response programs in telemarketing, mail, catalog, and print/broadcast media settings. Applications in consumer, business-to-business, and non-profit areas are also discussed.

MKT 4310 Advertising Management 1 (3 q.h.)

This course focuses on the management of the advertising function in relation to a firm's overall marketing objectives. The course approaches the subject from the perspective of the user of advertising (e.g., product manager, marketing manager). Case studies and text material are used to help the student develop decision-making skills. *Prereq. MKT 4301.*

MKT 4315 Professional Selling Skills (formerly Sales Management 1) (3 q.h.)

Allows student to develop effective selling skills. Examines the customer buying process and the company sales process. Discusses prospecting, preparation, presentation, and post-sale activities and introduces advanced selling techniques, such as team selling. Focuses on situations where personal selling is a major element

of marketing strategy, such as industrial-product, professional-service, and high-technology marketing. *Prereq. MKT 4301.*

MKT 4320 Marketing Management (3 q.h.)

This course is designed to provide training in marketing decision-making. Case studies simulating actual business settings are used to help students develop analytical abilities and sharpen their communication skills. Topics covered ranged from techniques used to analyze a market to the development of a total marketing strategy (product policy, pricing policy, promotion policy, and distribution policy). *Prereq. MKT 4301.*

MKT 4411 Advertising Management 2 (Reserved) (3 q.h.)

Continuation of MKT 4310. Surveys why and how advertising works and includes challenging and practical case studies. *Prereq. MKT 4310 and 80 q.h.*

MKT 4416 Strategic Sales Management (formerly Sales Management 2) (Reserved) (3 q.h.)

Today the whole company sells because firms use a team approach to maintain customer relationships. So whether your field is marketing/sales, finance, operations, or information technology, the course material will be important in your career. The course develops the professional decision-making skills to build an effective marketing program. Topics include partnership selling, supervision of field operations, formulation of policies such as finding and developing salespeople, compensation and motivation, and the senior executive's responsibility for integrating overall marketing and sales strategy. *Prereq. MKT 4315 and 80 q.h.*

MKT 4430 Market Research 1 (Reserved) (3 q.h.)

Course focuses on providing students with an introduction to the field of marketing research. Topics in Market Research 1 include problem definition, secondary and syndicated data sources, measurement concepts, questionnaire design, sampling, and experimentation. Emphasis on this course will be on procedures and methods that should be used in order to increase the likelihood that high-quality data will be obtained. *Prereq. MKT 4301 and 80 q.h.*

MKT 4431 Market Research 2 (Reserved) (3 q.h.)

This course is a continuation of Market Research 1. It will familiarize students with commonly used data collection and data analysis methods. A majority of the course will be spent analyzing survey data using canned statistical programs (SPSS). Particular methods of analysis will include estimation procedures, chi-square analysis, correlation analysis, and analysis of variance. *Prereq. MKT 4430 and 80 q.h.*

MKT 4453 International Marketing (Reserved) (3 q.h.)

This course is designed to help familiarize the student with those aspects of marketing that are unique to international business within the framework of traditional functional areas of marketing. The focus is on the environment and the modifications of marketing concepts and practices necessitated by environmental differences. Topics include cultural dynamics in international markets, political and legal environmental constraints, educational and economic constraints, international marketing research, international marketing institutions, and marketing practices abroad. *Prereq. MKT 4320 and 80 q.h.*

MKT 4457 Competitive Strategy (Reserved) (3 q.h.)

Focuses on integrative marketing strategies and uses advanced case studies in marketing. More than any other field in business, marketing requires a broad range of skills. The course will help develop analytical skills needed to identify and assess opportunities, creative skills to come up with new ideas and products, and organizational and communication skills to get those ideas and products to the customer. *Prereq. MKT 4320 and 80 q.h.*

MEDICAL LABORATORY SCIENCE

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MLS 4104 Introduction to Phlebotomy (4 q.h.)

(Offered Winter, Spring, and Summer quarters.)

This course emphasizes the role of the phlebotomist as part of the healthcare team. Topics will include proper patient identification, patient relationship, equip-

ment, venipuncture procedure, anatomy and physiology, terminology, and pertinent others. *Requires liability insurance coverage. Prereq. or Coreq. CMN 4101 and MLS 4114.*

MLS 4108 Phlebotomy Applied Study (2 q.h.)

(Offered Fall and Spring quarters.)

This course develops the confidence and experience needed to become an expert phlebotomist. Varieties of venipunctures will be performed under the supervision of clinical instructors in an affiliated clinical site. *Prereq. B- or better in MLS 4104. (Laboratory fee.) Liability insurance coverage is required and must be acquired at the beginning of MLS 4104.*

MLS 4112 Introduction to Point of Care Testing (3 q.h.)

Focuses on the performance of laboratory tests at or near the patient's bedside to offer efficient and effective patient testing. Stresses principles of methodology, instrument calibration, and preventive maintenance. Quality control and quality assurance, data management, competency assessment, proficiency testing, and checklists for outside agency inspection will be discussed. Point of care tests may include blood glucose monitoring, urinalysis, hemocult, PT, ACT, EKGs, pregnancy testing, and rapid Strep tests.

MLS 4301 Medical Laboratory Science Orientation (2 q.h.) (Offered Fall quarter.)

Scope, responsibilities, opportunities, and educational requirements for the medical laboratory science professions. Medical terminology and laboratory mathematics are included.

MLS 4321 Hematology (3 q.h.)

Basic hematological techniques, including discussion of the differential smear and observation of the normal morphology of human red cells, white cells, and platelets. *(Laboratory fee.) Prereq. BIO 4109 or equiv. Not open to medical technology majors.*

MLS 4341 Epidemiology 1 (3 q.h.)

Basic concepts in epidemiology, the distribution in determinants of health, disease prevention, and risk factors, as well as the determinants of diseases and injuries in human populations. Descriptive and analytical epidemiology studies are included.

MLS 4342 Epidemiology 2 (3 q.h.)

Microbiological distributions in determinants of infectious diseases; hospital epidemiology. May be taken independently of Epidemiology 1.

MLS 4700 Advanced Tutorial 1 (3 q.h.)

Opportunity to take upper-level course independently. See page 219 for details. *Prereq. 87 q.h.*

MLS 4701 Advanced Tutorial 2 (3 q.h.)

See MLS 4700.

MATHEMATICS

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MTH 4000 Mathematical Preliminaries 1 (4 q.h.)

A review of pre-college mathematics, primarily arithmetic and elementary algebra. Topics include operations with numbers, fractions, decimals, percents, exponents, signed numbers, simple equations and polynomials together with application of these skills and concepts. The sequel to this course is MTH 4010. *For SGS students only.*

MTH 4003 Foundations of College Mathematics (4 q.h.)

This course is designed for college students who have no previous experience in algebra and for those who need a review of basic algebraic concepts. The primary objective of the course is to gain familiarity with mathematical symbols and operations in order to show how mathematics can model and solve authentic real-world problems. Topics include variables, exponents, the real number system, linear equations and inequalities, graphing, systems of linear equations, polynomials, factoring, and operations with rational expressions. This course provides the skills necessary for students to successfully complete MTH 4110, MTH 4111 and MTH 4112. *Credit for this course cannot be applied to School of Engineering Technology degree programs.*

MTH 4006 Technical Mathematics* (4 q.h.)

Reviews high school algebra equations, formulas, exponents, polynomials, factoring, scientific notation, fractions, radicals, quadratic equations, and linear equations and their applications. Students are required to purchase a TI-85/86 graphing calculator. *Credit cannot be used*

in the associate in engineering, associate in science, or the bachelor of science in engineering technology degree programs. Prereq. None.

MTH 4010 Mathematical Preliminaries 2 (4 q.h.)

A survey of algebra including exponents, multiplication of polynomials, factoring, linear equations, quadratic equations, graphing, linear systems with two variables together with applications. Each student is required to purchase a TI-83 graphing calculator. *For SGS students only.*

MTH 4020 Functions and Algebra (4 q.h.)

Examines how to solve and graph various kinds of algebraic functions: linear, quadratic, exponential, logarithmic, rational as well as linear systems with two and three unknowns. Includes applications such as variation, motion and mixture problems. *For SGS students only.*

MTH 4030 Applications of Algebra (4 q.h.)

Examines linear equations and their graphs, systems of equations, and linear inequalities in two variables with application to linear programming. Introduces matrices and cryptography, set theory, techniques of counting permutations, combinations and elementary probability. *For SGS students only.*

MTH 4040 College Mathematics for Business (4 q.h.)

Focuses on using the graphing calculator to solve and graph various non-linear functions such as quadratic, exponential logarithmic and logistic equations. Modeling, scatter plots, and finding the "best fit" equation are applied to real world problems in business and other fields. Second half concentrates on solving finance problems, including annuities and loans. A business project analyzing a publicly traded company's performance is required. A TI-83 graphing calculator is required for this course. *For SGS students only.*

MTH 4060 Overcoming Math Anxiety (Noncredit)

A four-hour workshop that focuses on overcoming "math anxiety" by helping to demystify the world of mathematics. Examines mathematical myths and realities and the factors that interfere with learning. This hands-on workshop presents a comprehensive diverse approach to "math

anxiety" that will help the students redirect their thinking in a way that will promote self-confidence and success in mathematics.

MTH 4107 College Algebra* (4 q.h.)

Examines laws of exponents, factoring, operations with fractional expressions, radical and complex numbers, Pythagorean Theorem and distance formula, linear and quadratic equations and inequalities, and functional notation. Includes graphing of a wide variety of functions and equations, including lines, conic sections, and polynomials. Studies solutions to many types of equations, including linear, quadratic, and polynomial. Also explores many applications of algebra. Students are required to purchase a TI-85/86 graphing calculator. *Prereq. MTH 4006 or equiv. in high school algebra.*

MTH 4108 Pre-Calculus* (4 q.h.)

Studies exponential and logarithmic functions, trigonometric functions of angles in degrees and radians, trigonometric identities and equations, right triangles, law of sines and cosines, inverse trigonometric functions, and polar coordinates. Examines complex numbers in trigonometric form, systems of linear and nonlinear equations, binomial theorem, arithmetic and geometric sequences and series. Students are required to purchase a TI-85/86 graphing calculator. *Prereq. MTH 4107.*

MTH 4110 Contemporary Algebra 1 (3 q.h.)

This course develops strategies for problem solving, graphing, functions, mathematical modeling, critical thinking and contemporary applications that use real data. Emphasis is placed upon solving linear functions, inequalities, linear systems of equations in two variables, mathematical models, and the graphing and application of systems of linear inequalities. *Prereq. One year of high school algebra or its equiv. A placement test is given during the first class meeting. Students who do not attain a qualifying score on this test are advised to enroll in MTH 4003 Foundations of College Mathematics, for additional preparation. This course cannot be applied to the Lowell Institute degree programs.*

MTH 4111 Contemporary Algebra 2 (3 q.h.)

This course continues the emphasis on functions and modeling introduced in Contemporary Algebra 1 through the study of polynomials, the development of a general factoring strategy, solving polynomial equations, operations with rational expressions, modeling using variation, operations with radical functions and exponents, and quadratic equations and functions. *This course cannot be applied to the Lowell Institute degree programs. Prereq. MTH 4110 or equiv.*

MTH 4112 Contemporary Algebra 3 (3 q.h.)

This course completes the sequence in Contemporary Algebra. It includes matrix solutions to linear systems, determinants and Cramer's Rule, imaginary and complex numbers, modeling with exponential and logarithmic functions, conic sections, sequences and series, probability and mathematical induction. *This course cannot be applied to the Lowell Institute degree programs. Prereq. MTH 4111 or equiv.*

MTH 4114 Contemporary Algebra 1 and 2 Combination (Intensive) (6 q.h.)
Same as MTH 4110 and MTH 4111.

MTH 4120 Calculus 1* (4 q.h.)

Studies general function operations, theory and evaluation of limits, derivatives of algebraic and trigonometric functions, general rules of differentiation, Rolle's Theorem and Mean Value Theorem. Also covers applications of differentiation, including velocity and acceleration, related rates, maximum, minimum, curve sketching, and approximations by differentials. Students are required to purchase a TI-85/86 graphing calculator. *Prereq. MTH 4108.*

MTH 4121 Calculus 2* (4 q.h.)

Begins with antidifferentiation and the solution of problems solved by simple differential equations. Examines the Riemann sum and the development of the fundamental theorem with applications

**This is a Lowell Institute School course, which is offered at a different tuition rate than that of University College.*

to areas, volumes, and rectilinear motion problems. Topics include logarithmic, exponential, and inverse trigonometric functions and their applications. Studies techniques of integration, including parts, partial fractions, substitution, and the use of tables, L'Hopital's rule, improper integrals, and geometry of vectors in a plane and space. Students are required to purchase a TI-85/86 graphing calculator. *Prereq.* MTH 4120.

MTH 4122 Calculus 3* (4 q.h.)
Begins with sketching surfaces in space leading to a study of functions of several variables, partial derivatives, multiple integrals with applications to area and volume. Studies sequences and series to the development of Taylor and Maclaurin series. Introduces differential equations including the solution, with applications, of first-order variables separable, first-order linear, and second-order linear homogeneous. Students are required to purchase a TI-85/86 graphing calculator. *Prereq.* MTH 4121.

MTH 4123 Differential Equations* (4 q.h.)
Examines linear differential equations with constant coefficients, homogeneous and nonhomogeneous. Explores the variation of parameters and undetermined coefficients and simultaneous differential equations, the Laplace transform and series solution of differential equations, and the Fourier series. Studies the orthogonal functions and numerical solutions of differential equations. Students are required to purchase a TI-85/86 graphing calculator. *Prereq.* MTH 4122.

MTH 4130 Fundamentals of Calculus 1 (3 q.h.)
Introductory course intended for students in liberal arts, business administration, and other nonengineering curricula. Includes fundamentals of differential calculus, rules of differentiation, rates of change, graph sketching, and growth and decay function. A graphing calculator is required for this course; either the TI-83 or TI-86 is recommended. *This course cannot be applied to the Lowell Institute degree programs. Prereq.* MTH 4112 or equiv.

MTH 4131 Fundamentals of Calculus 2 (3 q.h.)
Applications of differential calculus, including problems in optimization, velocity and acceleration, compound interest,

population growth, and the fitting of equations to data. Introduces integral calculus, areas, average values of functions, marginal cost and profit, and depreciation. A graphing calculator is required for this course; either the TI-83 or TI-86 is recommended. *This course cannot be applied to the Lowell Institute degree programs. Prereq.* MTH 4130 or equiv.

MTH 4132 Fundamentals of Calculus 3 (3 q.h.)
Calculus of trigonometric functions, techniques of integration, numerical methods, and differential equations. Applications include pricing, allocation of funds, present value of an investment, manufacturing efficiency, and product reliability. A graphing calculator is required for this course; either the TI-83 or TI-86 is recommended. *This course cannot be applied to the Lowell Institute degree programs. Prereq.* MTH 4131 or equiv.

MTH 4144 Mathematics for Finance (3 q.h.)
This course is designed to expand mathematical concepts to cover subjects such as compound interest, stated versus effective interest rates, present value, future value, internal rate of return, yield to maturity of bonds, planning for future expenses and retirement planning. With access to spreadsheet programs, students can model and develop formulas to analyze their own problems. *Prereq.* MTH 4111.

MTH 4196 Introductory Statistics/ Differential Equations* (4 q.h.)
Studies measures of central tendency, measures of variability, frequency distributions and the normal curve, percentiles and standard scores, correlation, inferential statistics, differences between means, analysis of variance (ANOVA), and non-parametric tests. Examines various types of differential equations and methods of solution, including first-order equations with variables separable and first-, second-, and higher-order homogeneous and nonhomogeneous linear equations with constant coefficients. Emphasizes applications and numerical methods throughout the entire course. Students are required to purchase a TI-85/86 graphing calculator. *Prereq.* MTH 4121.

MTH 4520 Critical Thinking for Research (3 q.h.)

Introduction to critical thinking for health, science, business, and other professionals engaged in research efforts. Presents the essential logic of data analysis to allow the student to critically evaluate research published in professional journals as well as newspapers. The process of collecting, analyzing, and interpreting data is discussed, as well as the use of computers in data analysis. Lectures used in conjunction with discussions of outside readings to illustrate concepts.

MTH 4700 Advanced Tutorial 1 (3 q.h.)
Opportunity to take upper-level course independently. See page 219 for details. *Prereq.* 87 q.h.

MTH 4701 Advanced Tutorial 2 (3 q.h.)
See MTH 4700.

MUSIC

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MUS 4100 Introduction to Music (3 q.h.)

The study of music as a major creative force and component of human civilizations in all parts of the globe. This survey course emphasizes the development of listening skills as well as an appreciation of musical forms within historical and cultural contexts.

MUS 4101 Music: A Listening Experience (3 q.h.)

Offers a computer-based "how to listen to classical music" course that assumes no previous musical knowledge. Studies masterworks of Western music but develops listening skills that are globally applicable. Students proceed at their own pace under the guidance and supervision of the instructor. All listening is done at a computer in the Media Center in room 200 Snell Library.

MUS 4109 Music and the Arts (3 q.h.)
Offers an interdisciplinary approach to music and other arts, including painting, film, and theater. Examines works of art from various periods in the context of the cultures that produced them. Supplement

**This is a Lowell Institute School course, which is offered at a different tuition rate than that of University College.*

ments regular classes with visits to art museums or attendance at concerts and theatrical performances.

MUS 4110 Music in Popular Culture (3 q.h.) Investigation of American attitudes toward culture, art, and beauty through consideration of contemporary popular music. Compares the different styles of pop music and traces their evolution. Examines the manipulation of public tastes by large corporations for commercial purposes.

MUS 4111 Rock Music (3 q.h.) History of rock music from its origins in American blues and other styles through the popular music of the 1950s, the political styles of the 1960s, and the diverse trends of the past decades. Emphasizes the formative years of rock.

MUS 4112 Jazz (3 q.h.) Jazz from its origins in New Orleans to the latest trends as well as the interrelationship of music and society. Includes analysis of the rhythmic, harmonic, instrumental, and stylistic characteristics of jazz. Covers the works of such creative jazz artists as Armstrong, Beiderbecke, Parker, Ellington, and Coltrane.

MUS 4120 Music Appreciation: The Masterworks of Western Civilization (3 q.h.) Selected masterworks of the Euro-American traditions will be studied in a chronological survey. This course emphasizes the development of listening skills as well as an appreciation of musical forms within historical and cultural contexts. Composers to be studied include Bach, Handel, Mozart, Beethoven, Brahms, Wagner, Mahler, and Stravinsky.

MUS 4123 Music of the Classical Period (3 q.h.) Study of changing musical styles from Stamitz and the Mannheim School through the works of Haydn, Mozart, and early Beethoven.

MUS 4124 Music of the Romantic Era (3 q.h.) Musical styles of the nineteenth century, including the role of music and the musician in the changing social, economic, political, and cultural structure of Europe. Analyzes music by Beethoven, Schubert, Berlioz, Brahms, Verdi, and Wagner.

MUS 4125 Music of the Twentieth Century (3 q.h.) The diversity of styles from Debussy through Stravinsky, Schoenberg, Bartok, and Hindemith and more recent developments, including *musique concrete*, chance music, and electronic music.

MUS 4130 The Symphony (3 q.h.) The symphony as the major genre in the Classical, Romantic, and contemporary periods. Covers works by Haydn, Mozart, Beethoven, Schumann, Tchaikovsky, Brahms, and Sibelius.

MUS 4140 Life and Works of Mozart (3 q.h.) Mozart's musical development from child prodigy to mature artist, traced from his own letters and from biographies. Includes analysis of many of his major works, including operas, symphonies, concertos, and chamber music.

MUS 4141 Life and Works of J. S. Bach (3 q.h.) The genius who summed up the Baroque era and whose every note reflected his profoundly humanistic approach to religion. Works examined include large choral masterpieces, such as the *St. Matthew Passion*, the *Brandenburg Concertos*, the *Well-Tempered Clavier*, and the *Suites*.

MUS 4145 Life and Works of Beethoven (3 q.h.) The complex personality and art of this figure, including his relation to the turbulent times in which he lived and his role in Classical and Romantic music.

MUS 4160 Music Therapy (3 q.h.) An introduction to the field of music therapy, including an exploration of the historical and current theories of music and medicine. Using skills developed in class, students will create and experience music activities for use in a variety of clinical settings. No music or therapeutic experience is necessary.

MUS 4163 Sound Health: Music and Relaxation 1 (3 q.h.) Opportunity to experience a heightened awareness of the power of music to effect physical and emotional change and to examine the effects of music on the body, mind, and spirit. An exploration into the awareness of sound and the physiological changes caused by music. Covers theories and techniques used to facilitate positive change, relaxation, and reduction of stress.

Includes sound pollution, the effects of vibrations on the body, guided imagery, music and meditation, and New Age and environmental music.

MUS 4164 Sound Health: Music and Relaxation 2 (3 q.h.) This course allows each student to strengthen his/her ability to work with specific techniques for using music to facilitate relaxation, stress reduction, and inner healing for personal use or in a health care setting. Emphasis will be on creating healing imagery, choosing appropriate music, and vocal techniques. *Prereq. MUS 4163.*

MUS 4165 The Music Industry (3 q.h.) Business-related areas of the music industry. Addresses the structure of the record industry and music publishing world, the function of performing rights organizations (ASCAP and BMI), and the role of concert and orchestral managers. Features guest lecturers from various fields and trips to "behind-the-scenes" locations.

MUS 4172 The Recording Studio (3 q.h.) The history and methods of audio reproduction from Edison's gramophone to today's multi-track digital techniques. Includes instruction and hands-on experience at the recording facility in the College's new Media Studio. Guest lectures from experts in the field and visit to a local professional studio. (*Additional fee required for studio work.*)

MUS 4180 Introduction to World Music (3 q.h.) The varied musical cultures of non-Western societies. Exploration of characteristics common to all musical systems, followed by investigation of music in the Middle East, southern and eastern Asia, Africa, South and Central America, and the Caribbean.

MUS 4200 How to Read and Write Music (3 q.h.) Basics of musical notation for students with little or no theory or performance background. Focuses on the use of the symbols of pitch and duration. Includes sight reading simple melodies, following scores, arranging music for small instrumental groups, transposition, and elementary rhythmic and melodic composition.

MUS 4241 Piano Class 1 (3 q.h.)

For beginning piano students who want to progress at their own pace. Grades are awarded after passing various step levels. Ownership of a piano is not required.

MUS 4242 Piano Class 2 (3 q.h.)

Introduction of scales, arpeggios, and triads to help students perform more advanced music. Repertoire consists of original compositions by the instructor and simple works by Bartok and Kabalevsky. *Prereq.* MUS 4241 or equiv., or instructor's permission.

MUS 4243 Piano Class 3 (3 q.h.)

Two-octave scales, arpeggios, and triads in all keys. Repertoire consists of Bartok, Kabalevsky, original compositions by the instructor, and duets specifically arranged for this course. *Prereq.* MUS 4242 or equiv., or instructor's permission.

MUS 4244 Voice Class (3 q.h.)

Basic vocal production required for fine singing. Repertoire, both classical and contemporary, is chosen for each student to learn and perform in lessons and outside of class. Includes lectures concerning diction, the physiology of singing, resonance, registers, interpretation, and the basics of music reading and sight-singing. Also includes class analysis of recordings of great vocal artists.

MUS 4261 Music Instruction (1 q.h.)

Individual instruction in a musical instrument or in voice. Lessons may be arranged on a 30-minute basis. Call 617.373.2416 for details. *Special fees.* May be repeated for credit.

MUS 4302 Computer Applications for Music Teachers (3 q.h.)

Introduces teachers to some of the many uses for the computer in the music classroom. At Northeastern's state-of-the-art music computer laboratory, participants will have instruction and hands-on access to a number of applications. Topics will include MIDI sequencing, notation, and ear-training. *Prereq.* MIS 4114 or equiv.

MUS 4305 Multicultural Perspectives in Music Education (3 q.h.)

Introduction to resources in multicultural music education. Participants will learn about music from many corners of the globe. What unites them, what differentiates them. Emphasis will be on where to

find appropriate materials for various age groups and how these materials can be used in the classroom.

NURSING

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NUR 4107 LPN-BSN Professional Transitions, Nursing Process and Skills (4 q.h.)

This course facilitates the advancement of the licensed practical nurse into professional practice by introducing the theoretical basis of practice. Emphasis is on the centrality of critical thinking to clinical reasoning. Introduces nursing process as a problem-solving tool in assessing communication, gathering data, interpreting evidence, analyzing viewpoints and forming judgments. Provides scientific principles as the framework for using basic nursing skills in the practice of selected nursing interventions. A portfolio is developed that documents and summarizes the students' years of experience as a licensed practical nurse. Political, legal and ethical issues form the basis for discussion as the LPN prepares to enter into professional nursing as a baccalaureate prepared registered nurse. *Prereq. or Coreq.* ENG 4102. *Registration by petition to the Program Office. Requires prior LPN experience.*

NUR 4206 Healthy Childbearing and Childrearing/Clinical (6 q.h.)

Emphasizes the promotion of health from conception to adolescence. Describes health-risk factors and explores risk-reduction strategies within the context of the individual, family and community. Nursing process is used to provide the framework to assess and intervene therapeutically in promoting healthy childbearing and childrearing. Examines the concepts of human development of individual, family and community within the context of the role of the professional nurse in promoting healthy childbearing and childrearing. Includes clinical learning experiences in a variety of settings. *Prereq.* NUR 4107, BIO 4258, BIO 4259, and PSY elective.

NUR 4208 Life Span Issues of Healthy Adulthood and Aging/Clinical (6 q.h.)
Emphasizes the promotion of health in adults and includes common health problems of adults at critical life stages from

the young adult to the frail, elderly years. Analyzes potential and actual health-risk factors and the discovery of risk-reduction strategies by applying the nursing process to the care of adults living within families and communities. Enables students to use health education and teaching methods in assessing and intervening therapeutically to meet the primary health-care needs of adults. Assesses the role of the nurse in partnership with the family and community in disease prevention. Includes clinical learning experiences in a variety of settings. *Prereq.* BIO 4209/4212, NUR 4107, NUR 4206 and NUR 4307.

NUR 4307 Life Span Issues on Health and Disease (3 q.h.)

Enables the student to understand the values that underlie health-seeking behavior and providing care. Uses values clarification to appreciate individual rights and responsibilities versus the common good. Examines cultural differences in light of individual and group behavior as well as life span issues and family and group responsibilities. Builds a caring ethic and a sense of professional responsibility on the basis of self-awareness and self-examination. *Prereq.* NUR 4107, SOC elective.

NUR 4308 Health Restoration in Adults/Clinical (6 q.h.)

Focuses on the therapeutic nursing interventions used to restore health to adults who are experiencing acute and/or complex health problems. Analyzes deviations from health with attention to the implications for the individual, as well as the family, in coping with health problems. Analyzes the client's healthcare needs and the resources to meet them, in collaboration with the client and health providers. Discusses ethical and legal dimensions of nursing care of adults. Emphasizes discharge planning and teaching. Includes clinical learning experiences in a variety of settings. *Prereq.* HSC 4301, HSC 4302, HSC 4220, HSC 4601, NUR 4107, NUR 4206, NUR 4208.

NUR 4310 Health Restoration in Children/Clinical (6 q.h.)

Focuses on the therapeutic nursing interventions used to restore health to children who are experiencing actual and/or complex health problems. Examines altered family patterns of coping within a developmental framework and describes sup-

port to meet the unique needs of the family and child. Addresses the therapeutic role in partnership with the family and resources available within a collaborative and interdisciplinary environment. Discusses ethical and legal dimensions of caring for children and their families. Includes clinical learning experiences in a variety of settings. *Prereq.* HSC 4301, HSC 4302, HSC 4220, HSC 4601, NUR 4107, NUR 4206, NUR 4208, NUR 4307, NUR 4308.

NUR 4402 Health Assessment (4 q.h.)
Provides the student with additional theory and skills relevant to the clinical decision-making role of the nurse as a primary caretaker. Extends the students' knowledge and experience of history-taking and physical and psychosocial assessment. Emphasizes analysis and synthesis of data obtained from a holistic health assessment as an essential framework for the identification of common health abnormalities and the enhancement of the nurse's clinical decision-making skills.

NUR 4403 Professional Transitions in Nursing (4 q.h.)
This course facilitates the advancement of the registered nurse student in the profession by expanding the theoretical basis of practice. Political, legal, and ethical issues form the basis for discussion of professional nursing. Self-evaluation and personal analysis of professional growth are enhanced through portfolio development and seminars. *Registration by petition to the Program Office. Requires prior nursing experience.*

NUR 4408 Mental Health Restoration/Clinical (6 q.h.)
Focuses on developing, implementing, and evaluating psychotherapeutic interventions for clients with complex mental health problems. Analyzes alterations in psychobiological and psychosocial functioning and coping. Formulates a plan of care within the context of the client as individual, family, group and community. Provides the opportunity to apply theories, principles, and research findings in providing mental health care for clients in various settings. Discusses the political, legal and ethical issues related to the delivery of mental health services and the creative role of the nurse. Includes clinical learning experiences in a variety of settings. *Prereq.* NUR 4308 and NUR 4310.

NUR 4502 Introduction to Nursing Research (4 q.h.)
Builds on students' prior exposure to selected studies applied to nursing. Discusses and critiques qualitative and quantitative research and the value of each to the practice of nursing and to the healthcare field. Examines the importance of research in nursing to both practitioner and consumer. *Registration by petition to the Program Office. Prereq.* NUR 4403, ECN 4251, and ENG 4112.

NUR 4503 Nursing and the Community (7 q.h.)
This course uses the nursing process to promote healthy individuals, families, groups, and communities. The role of the nurse in multiple areas of practice is emphasized, with special attention to health promotion and disease prevention strategies. Within the clinical practicum, the student will have the opportunity to plan and provide nursing interventions to clients as they strive to improve their health status and the health of their community. The student will work independently and interdependently with clients, other healthcare providers, and community organizations. *Registration by petition to the Program Office. Prereq.* NUR 4402 and NUR 4403.

NUR 4508 Management and Leadership in Nursing (6 q.h.)
This course focuses on the knowledge and skills related to the delivery of nursing services within a management context. Theories, concepts, and models are analyzed to provide the knowledge base for the management role. The clinical practicum enables the student to apply principles in a health-related organization. *Registration by petition to the Program Office. Prereq.* NUR 4503.

NUR 4510 Nursing Senior Clinical Practicum (4 q.h.)
A comprehensive synthesis of nursing knowledge, skills and experience to facilitate the transition to professional nursing practice and case management of clients with complex health problems. Emphasizes leadership and collaborative skills in working with other members of the healthcare team. Examines professional, role and career issues in weekly seminars. Includes a synopsis of all clinical learning experiences. *Prereq.* Completion of all NUR coursework and senior standing.

OPERATIONS MANAGEMENT

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OM 4301 Introduction to Operations Management (formerly IM 4301) (3 q.h.)
Concepts and principles related to the management of operation functions, taught from a management point of view. Relationships to other business functions. Operations, as a transformation process, with inputs of materials, investment, and people producing finished goods/services. Topics covered include product and process design, forecasting demand, capacity planning, facilities design, aggregate planning, scheduling, and quality control and assurance. *Prereq.* Knowledge of algebra and statistics. *Not open to students who have taken IM 4301, IM 4401, or OM 4404.*

OM 4314 Productivity Enhancement and Quality (formerly IM 4314) (3 q.h.)
The fields of quality control and productivity as a body of managerial, technological, behavioral, and economic knowledge, together with the organized application of this knowledge to the practical improvement of operations. Introduction to various productivity improvement programs currently in use, including measurement and control; the relationship between increase in productivity and managing for higher quality. Reviews management practices of modern quality control and the different approaches to optimizing quality. Includes the economics of total quality, internal and external quality, and management of long-term quality and reliability. *Not open to students who have taken IM 4314.*

OM 4321 Operations Planning and Control (formerly IM 4321) (3 q.h.)
The nature of control in general and the specific characteristics of management and operations control. Examines control structures, processes, and bases for design and implementation. *Prereq.* OM 4401, OM 4301, or OM 4404. *Not open to students who have taken IM 4321.*

OM 4325 Business Decision Models (formerly MS 4325) (3 q.h.)

Modeling as a method for gaining insight into the underlying mathematical structure of business problems. Discusses specific modeling techniques, such as linear programming and simulation. *Prereq. MTH 4111 and ECN 4251.*

OM 4330 Basics of Supply Chain Management (3 q.h.)

The Basics of the Supply Chain Management course has been developed for those who need a basic understanding of the planning and control of the flow of materials into, through, and out of organizations. The purpose of this course is to provide some grounding in materials management in the areas of manufacturing systems, forecasting, master planning, capacity management, production activity control, purchasing, inventory management, physical distribution, quality management, Just-In-Time manufacturing and operations planning and control. It also provides preparation for those who wish to take the APICS examination and to earn the CPIM designation.

OM 4351 Introduction to Purchasing (formerly PUR 4351) (3 q.h.)

Introduction to the function of purchasing in the industrial organization. Includes purchasing responsibilities, objectives, organization, and personnel requirements; purchasing policy and systems; the role of the computer in regulating purchasing, planning, transactions, and information retrieval; acquisition of purchased materials, development of sources of supply, and quality assurance; and determination and maintenance of required inventory levels. Also covers price determination, cost and price analysis, make or buy decisions, the role of standardization, and value analysis. The process of purchase negotiations, ethical considerations in purchasing, purchasing law, and contract cancellations are also examined. This course can be used for NAPM certification examinations.

OM 4357 Business Negotiations (formerly PUR 4357) (3 q.h.)

Explores buyer-seller communication and exchange. Includes the interactive process for arriving at a satisfactory agreement between buyer and prospective vendor and accepted strategies employed by both parties. Discusses economic and

technical considerations and the psychological and interpersonal environments of negotiations.

OM 4358 Materials Requirements Planning (MRP) (formerly PUR 4358) (3 q.h.)

Includes the determination of material requirements based on the master production schedule, as well as calculation of the time periods in which materials must be available. The computer-based MRP system may be used as preparation for APICS certification exams.

OM 4370 Inventory Management (formerly PUR 4370) (3 q.h.)

Explores basic inventory management objectives, from the control of raw materials to finished goods and distribution inventory management. Includes aggregate inventory controls, lot sizing, customer service objectives, and the financial and physical controls necessary for effective inventory management. Course may be used as preparation for APICS certification examinations.

OM 4390 Just-In-Time Manufacturing (JIT) (formerly PUR 4390) (3 q.h.)

Just-In-Time manufacturing is a natural evolution of traditional practices that strives toward increasing through-puts, decreasing inventory investments, decreasing operating expenses, improving quality, etc. This course has been developed to introduce the student to the philosophies, principles, concepts, and techniques of Just-In-Time purchasing and manufacturing. Emphasis on the differences between traditional and J.I.T. manufacturing will be discussed in detail. This course will also help the student to prepare for the APICS Just-In-Time certification examination.

OM 4395 Master Production Scheduling (MPS) (formerly PUR 4395) (3 q.h.)

This course is divided into two sections: Forecasting and Master Production Scheduling. The forecasting section develops the concept of forecasting; qualitative, intrinsic and extrinsic techniques, forecast source data, forecast accuracy, statistics, the relation of forecasting to other processes, and management considerations. The Master Production Scheduling section develops the concepts of master scheduling planning and control, development and utilization of a master pro-

duction scheduler. Finally, the course discusses the link among forecasting, the master production schedule, and customer orders. This course can be used for preparation for the APICS certification examination.

OM 4396 Systems and Technologies (formerly PUR 4396) (3 q.h.)

Systems and Technologies is the newest APICS module, which focuses on the relationships between the functions of production and inventory control and manufacturing. The purpose of the course is to help the student understand the integrated needs of both existing and emerging technologies and the synergy necessary to provide positive results in the production and inventory environment. This course helps the student recognize business, marketing, and manufacturing strategies that drive the choice and configuration of production and inventory functions, tools, and methods. This course can be used for preparation for the APICS certification examination.

OM 4404 Service Operations Management (Reserved) (3 q.h.)

Operational issues confronting organizations competing in the service sector are discussed. Topics covered include service design, location, and layout. Other topics addressed are the capacity decision, aggregate planning, technology, scheduling, inventory issues, and the pursuit of quality (excellence). *Prereq. ECN 4251 and 80 q.h.*

OM 4600 Honors Program 1 (formerly IM 4600) (4 q.h.)

Opportunity to undertake an in-depth research study project. See page 219 for details. *Prereq. 96 q.h., 3.5 q.p.a.*

OM 4701 Independent Study 1 (formerly IM 4701) (3 q.h.)

Opportunity to undertake special research. See page 219 for details. *Prereq. 96 q.h., 3.0 q.p.a.*

OM 4702 Independent Study 2 (formerly IM 4702) (3 q.h.)

See OM 4701.

OM 4800 Advanced Tutorial 1 (formerly IM 4800) (3 q.h.)

Opportunity to take upper-level course independently. See page 219 for details. *Prereq. 87 q.h.*

OM 4801 Advanced Tutorial 2
(formerly IM 4801) (3 q.h.)
See OM 4800.

PHILOSOPHY AND RELIGION

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PHL 4100 Philosophical Thinking (3 q.h.)

Methods and values of thinking philosophically. Reveals strategies of dialogue and of informational discovery through understanding and use of the Socratic method of intellectual exchange. Analyzes the universal quest for truth in order to distinguish between knowing and not knowing, dogma, and ignorance. Proves value issues through questions in ethics and moral philosophy.

PHL 4102 Critical Thinking (3 q.h.)

This course will provide the student with several key skills: the organization and development of argument, analysis of content, and clear and precise articulation of ideas. Standard critical thinking texts will be coupled with texts from a variety of sources, ranging from newspaper articles to materials originating in the student's own field.

PHL 4105 Philosophy of Knowing and Reality (3 q.h.)

The difference between knowledge and belief. Areas of theoretical focus include the nature of ultimate reality, the nature of human knowledge, and the nature and existence of God. The investigation of a variety of problems and alternative solutions helps students think independently and self-critically. Emphasizes the development of discipline and precision in communicating ideas.

PHL 4110 Social and Political Philosophy (3 q.h.)

Ethics and social and political philosophy. In ethics, addresses the questions "What sorts of things are good or bad?" and "What actions are right or wrong?" In social and political philosophy, examines theories of human nature, social change, social institutions, and major twentieth-century political theories. Possible additional topics include aesthetics and philosophy of history.

PHL 4165 Bioethics (3 q.h.)

Introduces the student to ethical theories, moral principles, and principles of distributive justice. Then uses these theories and principles to analyze the moral problems that arise in the medical context.

PHL 4180 Business Ethics (3 q.h.)

Ethical principles and considerations involved in making moral business decisions. Studies basic ethical viewpoints as a foundation; analyzes specific characteristics of business life through particular cases and examples.

PHL 4185 Ethics and International Development (3 q.h.)

Explores the ethical perspective in recent efforts to improve health and standards of living in developing countries through critical analysis, discussions, and case studies. Reviews aspects of national policy in developing countries and describes specific ethical challenges associated with improving health on a global scale.

PHL 4200 Logic (3 q.h.)

Essentials of lucid thinking in terms of basic logical concepts, including deductive and inductive reasoning, valid and invalid arguments, and the varied functions of language and definition. Also examines how to recognize and evaluate different kinds of arguments, methods of detecting and avoiding common errors in reasoning, and the link between structured thought and effective communication.

PHL 4220 The Meaning of Death (3 q.h.)

Various philosophical and religious views concerning the meaning of death. Discusses such questions as "What attitude should one take regarding one's own death?" "What role does death play in our personal relations to others?" and "Is it necessary to believe in an afterlife in order to give meaning to this life?"

PHL 4233 Special Topics in Philosophy (3 q.h.)

Examination of a variety of subjects and themes, such as ancient philosophy, philosophy of science and technology, and ethical issues in race and gender. Because topics change from quarter to quarter, students may take this course more than once, provided they focus on a different topic each time.

PHL 4235 Ethics and the Professions (3 q.h.)

As professionals, we face many decisions about the "rightness" or "wrongness" of our ideas and actions. Explores two different approaches to moral dilemmas: utilitarian theory, which defines the good as the best possible outcome, and deontological theory, which states that actions themselves are either good or evil. Applies these ethical theories to the moral choices we make as professionals in areas such as business, criminal justice, health care, and human services.

PHL 4243 Existentialism (3 q.h.)

Existential philosophy as understood through study of its greatest representatives, such as Kierkegaard, Nietzsche, Dostoyevsky, Heidegger, Jaspers, Camus, Sartre, and Merleau-Ponty. Focuses on the central themes of self-alienation, authenticity, and existential experiences.

PHL 4245 Philosophy of Religion (3 q.h.)

The arguments for the existence of God. Covers natural and moral evil, the soul, immortality, the evidence for miracles, and the nature of religious knowledge.

PHL 4249 Women and Religion (3 q.h.)

Women and religion as described in classical and contemporary sources.

PHL 4250 Philosophy of Human Nature (3 q.h.)

Philosophical and literary study of human nature. Questions include "What is human nature?" and "What is a human being?" Examines some of the philosophical answers to these questions, with special attention to the significance of tradition, social role, freedom, and decision.

PHL 4270 The Great Western Religions (3 q.h.)

Study of the basic teachings of Judaism, Christianity, and Islam.

PHL 4273 Judaism (3 q.h.)

Philosophy of the Jewish religion, its metaphysical and ethical beliefs, and the philosophical origins of these beliefs.

PHL 4275 The Great Eastern Religions (3 q.h.)

Study of the basic teachings of Taoism, Confucianism, Buddhism, Hinduism, and Shintoism.

PHL 4277 Hinduism (3 q.h.)

The Hinduism of the *Upanishads*, the most explicit of the mystical religions. Also includes the devotional aspect of Hinduism as expressed in the *Bhagavad Gita*.

PHL 4279 Buddhism (3 q.h.)

Central teachings of Buddhism, including the doctrines that there is no independently existing immutable self or soul, that all phenomena are impermanent, that existence is suffering, that suffering has a cause, and that there is a way to eliminate suffering.

PHL 4280 Islam (3 q.h.)

History of Islam, its conflicts with the West in the past and in the present, Islamic beliefs, and the future of Islam as a world religion.

PHL 4317 Understanding the Bible (3 q.h.)

This course introduces students to the Old and New Testaments so that they may enter into a dialogue with the Bible, understanding not only what it says but also why it is said that way. Discussion focuses on the Bible's social, political, and cultural backgrounds.

PHYSICS

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Physics courses are Lowell Institute School courses, which are offered at a different tuition rate than that of University College.

PHY 4101 College Physics 1 (4 q.h.)

Introduces students to mechanics, including units of measurement, vectors, accelerated motion, and Newton's laws of motion. Topics include conservation of energy, work, momentum, elements of heat, mechanical waves, and vibrating bodies. Includes laboratory experiments and classroom demonstrations as an integral part of the course. (This course is intended for health professions and science programs and cannot be used for credit toward technology degrees in The Lowell Institute School.) *Prereq. MTH 4107 or equiv.*

PHY 4102 College Physics 2 (4 q.h.)

Introduces magnetism, magnetic fields, electromagnetic induction, electrostatics, and electric circuits. Discusses appropriate topics in optics, nuclear, and atomic physics. Involves frequent laboratory experiments and classroom demonstrations. (This course is intended for the health professions and science programs and can not be used for credit toward technology degrees in The Lowell Institute School.) *Prereq. PHY 4101.*

PHY 4117 Physics 1 (4 q.h.)

Introduces vectors and balanced forces, accelerated motion, projectile motion, Newton's laws, work and energy, and momentum. *Prereq. MTH 4107 or concurrently.*

PHY 4118 Physics 2 (4 q.h.)

Explores rotational kinematics and dynamics, elasticity and periodic motion, density and pressure, temperature, heat and heat transfer, wave motion and sound, and the properties and interference of light. *Prereq. PHY 4117.*

PHY 4119 Physics 3 (4 q.h.)

Covers electric forces and fields, electric potential, direct current circuits, magnetic forces and fields, electromagnetic induction, and alternating current circuits. *Prereq. MTH 4107 or concurrently.*

PHY 4196 Physics Laboratory 1 (1 q.h.)

Experiments from various physics topics covered in PHY 4117. *Prereq. PHY 4117 concurrently.*

PHY 4197 Physics Laboratory 2 (1 q.h.)

Experiments from various physics topics covered in PHY 4118. *Prereq. PHY 4196 and PHY 4118 concurrently.*

PHY 4198 Physics Laboratory 3 (1 q.h.)

Experiments from various physics topics covered in PHY 4119. *Prereq. PHY 4119 concurrently.*

POLITICAL SCIENCE

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POL 4103 Introduction to Politics (3 q.h.)

Introduction to contemporary political science, including consideration of basic concepts in political analysis, the role of government institutions, political representation, political ideologies, and the scope and methods of political science.

POL 4104 Introduction to American Government (3 q.h.)

American governmental and political processes, constitutional institutions, political behavior, and liberties.

POL 4105 Introduction to Comparative Politics (3 q.h.)

Comparative study of constitutional and totalitarian systems, including the Western European and Soviet patterns.

POL 4106 Introduction to Politics (4 q.h.)

Basic political concepts and forces of organization from the classical Greeks to the modern nation-state. The Soviet Union and the United Kingdom are contrasted as illustrations of the institutional distinction between a totalitarian and a constitutional system. *For SGS students only.*

POL 4110 The Great Political Thinkers (3 q.h.)

Explores the great political thinkers from ancient Greece to the twentieth century. Probes the creative genius of such theorists as Plato, Aristotle, Aquinas, Hobbes, Hegel, Locke, Rousseau, Mill, and Marx.

POL 4112 Political Elites in Modern Democracies (3 q.h.)

This course focuses on theories of political elites in advanced industrial societies. The question of who rules is central. What role do elites play in modern democracies? Are there in fact elites? The theories of Mosca, Pareto, Michels, and the modern debate represented by thinkers such as Mills and Dahl are central to this course. The course also presents the Marxist, pluralist, and corporatist paradigms for understanding politics with respect to the issue of elites.

POL 4307 Politics of Health in International Development (3 q.h.)

Explores the problems of health in developing countries, particularly during the last decade. Examines the political dynamics at the village, national, and global levels that have hindered efforts to establish healthcare delivery systems. Analyzes issues of nationalism and problems of refugees.

POL 4309 Business and Government (3 q.h.)

Explores the interaction between business and government and the constraints within which each must operate in our society. Issues to be raised include the structure

and function of the corporation, understood as a political entity; the "revolving door" between business and government; the impact of corporations on democratic processes and institutions; and the degree to which political rights and economic rights are intertwined.

POL 4310 American Political Thought (3 q.h.)

Topics include political thought from the colonial period to the present, including study of the impact of religious, economic, and judicial theories on the structure of American ideas.

POL 4312 Political Parties and Pressure Groups (3 q.h.)

Discusses party government in the United States, focusing on the interaction of party and government.

POL 4313 State and Local Government (3 q.h.)

State and local governments, their problems, and functional and operational responses to these problems are examined.

POL 4314 Urban and Metropolitan Government (3 q.h.)

Explores political, structural, and functional problems of an urbanizing United States. Includes an analysis of urban, suburban, and metropolitan governments.

POL 4318 The American Presidency (3 q.h.)

Study of the nation's chief executive. Includes topics such as the presidential electoral process, the president's many constituencies, and the differing styles of twentieth-century presidents. Also covers constitutional and extraconstitutional powers of the office.

POL 4319 The Congress (3 q.h.)

Institutional and functional analysis of the roles of Congress are examined, as well as the chief executive and political parties in the legislative process.

POL 4320 American Constitutional Law (3 q.h.)

A case analysis of the development of federalism, the separation of powers, and the role of the federal and state courts in constitutional development.

POL 4321 Civil Liberties (3 q.h.)

Examination of quality and content of civil liberties in the United States. Emphasizes the First, Fifth, Sixth, Fourteenth, and Fifteenth amendments to the Constitution.

POL 4322 Criminal and Civil Due Process (3 q.h.)

Study of due process in the American constitutional scheme.

POL 4324 Politics and Documentary Film (3 q.h.)

Designed to complement *POL 4325, Politics and Film*, this course will focus on the documentary in an attempt to analyze the political themes and ideas different filmmakers bring to their subject. Implications for contemporary American society will be highlighted. Films to be viewed include Chris Marker's *Sans Soleil*, Peter Davis's *Hearts and Minds*, Frederick Wiseman's *Missile*, Michael Moore's *Roger and Me*, and Barbara Koppel's *The American Dream*.

POL 4325 Politics and Film (3 q.h.)

The relationship between films and politics is explored. Films are analyzed for their political content and impact on specific controversies and on politics and society as a whole.

POL 4326 The Sixties (3 q.h.)

A political, philosophical, sociological, and cultural analysis of the Sixties is presented. The major issues of that era are discussed: civil rights, the Vietnam War, the student movement. Special attention is given to the arts, including music and film.

POL 4328 Mass Media and American Politics (3 q.h.)

The study of the role of the media in shaping political opinions and behaviors. The role of the media in setting political agendas and reporting and interpreting political events will be examined. The nature and influence of public opinion in a democratic society will also be studied.

POL 4329 Psychology of Politics (3 q.h.)

How do psychological processes affect politics? How are people's political beliefs and attitudes shaped? What needs, intrinsic or otherwise, do people bring into the political process? What is "human nature," and what impact does it have on society? Is a non-repressive society possible? These are some of the issues to be discussed in this course, which will at-

tempt to integrate politics and psychology into a comprehensive analytical framework.

POL 4330 Comparative Politics (3 q.h.)

Discusses political culture, organization, and behavior in different national settings.

POL 4331 International Relations (3 q.h.)

Studies elements of and limitations on national power. Discusses contemporary world politics, problems of war, and peaceful coexistence.

POL 4332 International Organization (3 q.h.)

The development of international organizations, emphasizing the United Nations, specialized agencies, and regional organizations, is explored.

POL 4334 International Political Economy (3 q.h.)

Covers the nature and development of postwar international economic order, trade, and monetary regimes, the World Bank, oil, debt and sovereign lending practices, rise of Europe and Japan, international regime analysis, recent trade agreements, post-Cold War issues, and liberal, radical, and realist approaches to international political economy.

POL 4336 American Foreign Policy (3 q.h.)

Study of recent and current American foreign affairs.

POL 4337 The Politics of Arms Control (3 q.h.)

Discusses the nuclear arms rivalry between the United States and the Soviet Union, along with opportunities for curbing it through arms control. Includes the nature and purposes of nuclear weapons, past arms-control agreements, and recent breakthroughs. Explores current options for arms control.

POL 4338 European Political Parties (3 q.h.)

Emphasizes political party systems in England, France, and Germany and their ideology, organization in and out of Parliament, electoral strategies, and voter behavior.

POL 4339 Government and Politics of Russia (3 q.h.)

Surveys the government and politics of the Soviet Union as it was and of Russia today. Covers the history of the Soviet regime, government, economy, party, ideology, political culture, Gorbachev and his reforms, the breakup into various republics, and the problems facing Russia today.

POL 4341 Russian Foreign Policy (3 q.h.)

Surveys Russian and Soviet foreign policy from 1917 to the present, with special focus on the postwar period and the foreign policy reforms and problems faced by the new regime. Emphasis is given to Russia's relations with the West, including Western economies.

POL 4342 Eastern Europe in Transition (3 q.h.)

Surveys the new states of Eastern Europe, with a focus on economic and political reforms. Topics include the governments and institutions of the new regimes, the problems in instituting the market into their economies, and efforts to establish links with Western Europe and international economic organizations such as the IMF. Surveys the old regimes as single-party dictatorships, the tensions that existed with their Soviet connections, and the forces that led to their breaking away from Moscow.

POL 4344 Politics of European Integration (3 q.h.)

This course examines the impending integration of Europe into one commercial and political entity. Emphasis will be on the problem areas of environmental protection, agricultural subsidy, and the impact of free capital and labor movement on the developed social welfare states in Germany, Scandinavia, and the Netherlands. This upper-level course will be held in a seminar format.

POL 4359 Government and Politics in the Middle East (3 q.h.)

Political change, economic growth, and social adaptation in selected countries are discussed. The emergence of the Middle East from subjection to self-assertion is examined, focusing on such topics as the influence of Western Modernism, Muslim fundamentalism, inter-Arab rivalries, Arab-Israeli conflict, and the civil strife in Lebanon.

POL 4364 China's Foreign Policy (3 q.h.)

Examines Beijing's relations with Africa, the rest of Asia, the Soviet orbit, and the West. Covers policy objectives, strategy, tactics, and the methods of decision-making in both the party and state apparatus.

POL 4365 Government and Politics of China (3 q.h.)

Discusses Chinese political culture, emphasizing the nineteenth-century cultural, economic, and political impact of the West, the emergence of the Communist party under the leadership of Mao Tse-Tung, and the progressive disintegration of Kuomintang leadership.

POL 4367 Government and Politics of Japan (3 q.h.)

Examines the historical development of the Japanese nation, with particular attention to the growth of fascism and efforts to create a viable democracy since World War II.

POL 4370 Introduction to Political Theory (3 q.h.)

Discusses the development of the political ideas of the Western world, including the ideas of the major philosophers of Greece, Rome, the Christian Era, and the Renaissance.

POL 4371 Modern Political Theory (3 q.h.)

Explores political ideas and systems of thought from Machiavelli to the present. *Prereq.* POL 4370 or equiv.

POL 4372 Contemporary Political Thought (3 q.h.)

Analyzes current ideas, ideologies, and political movements. Examination of such topics as neoconservatism, neoliberalism, neo-Marxism, and women's liberation.

POL 4373 Islamic Political Thought (3 q.h.)

Introduces Islamic thought and political theory. Analyzes such classical theorists as Avicenna, Averroes, Al-Ghazali, and Ibn Khaldun and such modern theorists as Abduh, Iqbal, and Shari'ath.

POL 4378 Current Political Issues (3 q.h.)

Explores the constitutional and political basis of selected problems in American political life.

POL 4815 Advanced Tutorial 1 (3 q.h.)
Opportunity to take an upper-level course independently. See page 219 for details. *Prereq.* 87 q.h.

POL 4816 Advanced Tutorial 2 (3 q.h.)
See POL 4815.

POL 4820 Independent Study 1 (3 q.h.)
Opportunity to undertake special research. See page 219 for details. *Prereq.* 96 q.h., 3.0 q.p.a.

POL 4821 Independent Study 2 (3 q.h.)
See POL 4820.

POL 4822 Independent Study 3 (3 q.h.)
See POL 4820.

POL 4830 Honors Program 1 (4 q.h.)
Opportunity to undertake an in-depth research study project. See page 219 for details. *Prereq.* 96 q.h., 3.5 q.p.a.

POL 4831 Honors Program 2 (4 q.h.)
See POL 4830.

POL 4832 Honors Program 3 (4 q.h.)
See POL 4830.

PSYCHOLOGY

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PSY 4110 Introduction to Psychology: Fundamental Issues (3 q.h.)

Explores fundamental principles and issues of contemporary scientific psychology, which are approached as a method of inquiry as well as a body of knowledge. Examines the origins and methods of psychology, biological foundations of behavior, states of consciousness, learning, and memory.

PSY 4111 Introduction to Psychology: Developmental Aspects (3 q.h.)

Covers growth and the life-cycle, language, mental abilities, sensory and perceptual processes, and social interaction. *Prereq.* PSY 4110 or equiv.

PSY 4112 Introduction to Psychology: Personal Dynamics (3 q.h.)

Examines motivation, emotion, personality theory and measurement, abnormal psychology, and therapy. *Prereq.* PSY 4110 or equiv.

PSY 4114 Introduction to Psychology Intensive B (6 q.h.)

Same as PSY 4110 and PSY 4111.

PSY 4220 Statistics in Psychology 1
(3 q.h.)

Scales of measurement in psychological research, measures of central tendency, and variability are discussed. *Prereq.* PSY 4112 and MTH 4111.

PSY 4221 Statistics in Psychology 2
(3 q.h.)

Introduces measures of correlation, probability, and statistical distributions. *Prereq.* PSY 4220 or equiv.

PSY 4222 Statistics in Psychology 3
(3 q.h.)

Explores parametric and nonparametric tests of significance, including chi square, t-test, F test, and simple analysis of variance. *Prereq.* PSY 4221.

PSY 4231 Psychology of Learning
(3 q.h.)

Studies the basic principles and techniques of operant and Pavlovian conditioning and their applications to therapeutic, educational, and specialized training programs. *Prereq.* PSY 4111 or PSY 4112 or equiv.

PSY 4232 Motivation (3 q.h.)

Topics include various aspects of motivation, including primary and secondary reinforcement, unconscious motivation, effectuate motivation, and the assessment of motives. *Prereq.* PSY 4112 or equiv.

PSY 4240 Development: Infancy and Childhood (3 q.h.)

Explores human development from infancy through late childhood. Covers physical, cognitive, and psychosocial development, including the development of language, morality, and interpersonal relationships.

PSY 4241 Development: Adolescence
(3 q.h.)

Examines development during the second decade of life, emphasizing the tasks and problems confronting the individual adolescent. Includes topics such as biological, social, and cognitive changes as they relate to the creation of a stable, individual identity.

PSY 4242 Development: Adulthood and Aging (3 q.h.)

Discusses the unique features and problems of development from the adult years to death. Emphasizes changes that accompany career, marriage, and family developments and the specific psychological adjustments required of the aging person.

PSY 4262 Memory and Thinking
(3 q.h.)

Explores the mental processes involved in the acquisition, organization, and use of knowledge, including pattern recognition and memory. *Prereq.* PSY 4111, PSY 4112, or equiv.

PSY 4270 Social Psychology 1 (3 q.h.)

Studies the socialization process, social motives, interpersonal perception, and group membership and structure. *Prereq.* PSY 4111 or equiv.

PSY 4271 Social Psychology 2 (3 q.h.)

Examines topics of attitudes, prejudice and ethnic relations, leadership, mass behavior and social movements, and the effects of mass media on communication. *Prereq.* PSY 4270 or equiv.

PSY 4272 Personality (3 q.h.)

Studies the normal personality and its growth and development. Includes concepts such as environmental and genetic contributions, assessment of personality, research, and a survey of the major personality theories. *Prereq.* PSY 4112 or equiv.

PSY 4276 Stress and Its Management
(3 q.h.)

Covers stress and its effects on human behavior. Considers the causes of stress from a variety of theoretical perspectives. Techniques and procedures for stress management and reduction examined in detail.

PSY 4280 Human Sexuality and Love
(3 q.h.)

An examination, both theoretical and experimental, of psychological, biological, and social aspects of sexuality and loving. Topics include sexual anatomy and physiology, birth control, gender identity and gender role, romantic love (with emphasis on successful love relationships), diverse sexual lifestyles, sexual dysfunctions and therapy, and enhancement of one's own sexual awareness and pleasure and that of one's partner.

PSY 4290 Psychology of Women (3 q.h.)

Examines women, historically and in contemporary life, including their social roles and their behavior as determined genetically, physiologically, and psychologically. Includes discussion on the implications for women's future lifestyles, roles, and contributions.

PSY 4351 Physiological Psychology
(3 q.h.)

Introduces how nerves function and work together in the nervous system; how our sense organs provide the brain with information about the outside world; how the brain acts to produce behavior; and how such psychological concepts as perception, learning, motivation, arousal, and emotion may relate to nervous system activity. *Prereq.* PSY 4111 or PSY 4112 or equiv.

PSY 4352 Drugs and Behavior (3 q.h.)

Considers the application of quantitative behavior techniques in animals and humans to determine the behavioral effects of pharmacological agents. Includes systematic survey of experimental literature.

PSY 4372 Abnormal Psychology 1
(3 q.h.)

Diagnosis, symptomatology, etiology, and therapy of anxiety disorders, somatoform, and dissociative disorders. Introduction to the major forms of psychotherapy, including psychoanalysis, client-centered, behavioral, and cognitive therapy. *Prereq.* PSY 4112 or equiv.

PSY 4373 Abnormal Psychology 2
(3 q.h.)

Continuation of PSY 4372. Diagnosis, symptomatology, etiology, and therapy of schizophrenia, mood disorders, psychophysiological disorders, anti-social personality disorders, and organic disorders. Introduction to the somatic therapies. *Prereq.* PSY 4372.

PSY 4381 Sensation and Perception
(3 q.h.)

Introduces the nature of the perceptual world, the nature of object recognition and identification, spatial organization, contextual effects, learning and perception, and the influence of attitudinal, motivational, and personality factors on perception. *Prereq.* PSY 4111 or equiv.

PSY 4471 Psychological Therapies
(3 q.h.)

Studies techniques used for treating deviant behavior, from classical psychoanalytical therapies through methods of behavior modification. *Prereq.* PSY 4373 or equiv.

PSY 4561 Experimental Psychology 1 (3 q.h.)

Students conduct experiments focusing on the scientific method in the design, execution, analysis, and reporting of psychological investigations. *Prereq.* PSY 4222 and 120 q.h.

PSY 4562 Experimental Psychology 2 (3 q.h.)

Continuation of PSY 4561. *Prereq.* PSY 4561.

PSY 4563 Experimental Psychology 3 (3 q.h.)

Continuation of PSY 4562. *Prereq.* PSY 4562.

PSY 4611 Senior Seminar in Psychology (3 q.h.)

Small groups of students meet to discuss topics of mutual interest in psychology. Each seminar has a different focus, depending upon the student group and the instructor. *Prereq.* PSY 4561 and PSY 4562.

PSY 4813 Field Work in Psychology (6 q.h.)

Designed to enhance career development by allowing students to earn credit for the application of their academic backgrounds to practical problems in the workplace. See page 219 for details.

PSY 4815 Advanced Tutorial 1 (3 q.h.)

Opportunity to take an upper-level course independently. See page 219 for details. *Prereq.* 87 q.h.

PSY 4816 Advanced Tutorial 2 (3 q.h.)

See PSY 4815.

PSY 4820 Independent Study 1 (3 q.h.)

Opportunity to undertake special research. See page 219 for details. *Prereq.* 96 q.h., 3.0 q.p.a.

PSY 4821 Independent Study 2 (3 q.h.)

See PSY 4820.

PSY 4822 Independent Study 3 (3 q.h.)

See PSY 4820.

PSY 4891 Honors Program 1 (4 q.h.)

Opportunity to undertake an in-depth research study project. See page 219 for details. *Prereq.* 96 q.h., 3.5 q.p.a.

PSY 4892 Honors Program 2 (4 q.h.)

See PSY 4891.

PSY 4893 Honors Program 3 (4 q.h.)

See PSY 4891.

REAL ESTATE

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RE 4301 Real Estate Fundamentals 1 (3 q.h.)

Introduction to the basic principles and terminology of real estate useful in various real estate business practices.

RE 4302 Real Estate Fundamentals 2 (3 q.h.)

Examines practices of real estate brokerage, including real estate appraisal, finance, development, management, and investment. Upon successful completion of RE 4301 and RE 4302, students may take the Massachusetts broker's or salesperson's examination. *Prereq.* RE 4301.

RE 4303 Real Estate Fundamentals (Intensive) (6 q.h.)

Same as RE 4301 and RE 4302.

RE 4305 Real Estate Title Examination (3 q.h.)

Review of the general principles of abstracting and the function of the Registry of Deeds in the real estate business. General principles of title examinations are explored in detail, with attention given to recording deeds and the transfer of title in the conveyance of real estate. The function of the land court and registered land is also treated. Prepares the students for a possible career in title examination and may require field work in the form of activities to be performed at the Registry of Deeds.

RE 4323 Real Estate Appraisal 1 (3 q.h.)

Fundamental survey of the appraisal of single-family residences. Examines city or town neighborhood influences, site evaluation, building diagnosis, depreciation, the various approaches to value, and appraisal report preparation. *Prereq.* RE 4302.

RE 4324 Real Estate Appraisal 2 (3 q.h.)

Specialized overview of the appraisal of income properties. Includes application of the cost, market, and income approaches to apartment buildings and other commercial and industrial properties and of the various methods of capitalization and residual techniques. *Prereq.* RE 4323.

RE 4330 Real Estate Financial Analysis (Intensive) (6 q.h.)

Participants learn to critically examine and analyze real estate investment proposals. Explores in detail the financial aspects of acquisition, ownership, and disposition. Considers taxation, forms of ownership, analysis of operating statements, financial accounting, use of leverage, "tax sheltered" investments, special situations and problems. Spreadsheets utilized.

RE 4600 Honors Program 1 (4 q.h.)

Opportunity to undertake an in-depth research study project. See page 219 for details. *Prereq.* 96 q.h., 3.5 q.p.a.

RE 4701 Independent Study 1 (3 q.h.)

Opportunity to undertake special research. See page 219 for details. *Prereq.* 96 q.h., 3.0 q.p.a.

RE 4702 Independent Study 2 (3 q.h.)

See RE 4701.

RE 4800 Advanced Tutorial 1 (3 q.h.)

Opportunity to take upper-level course independently. See page 219 for details. *Prereq.* 87 q.h.

RE 4801 Advanced Tutorial 2 (3 q.h.)

See RE 4800.

SPEECH-LANGUAGE PATHOLOGY AND AUDIOLOGY

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SLA 4110 Introduction to Speech and Hearing (4 q.h.)

Offers a comprehensive survey of the profession, normal systems, and processes of human communication, language and speech acquisition, and the symptomatology and etiologies of such disorders as phonology-articulation, child and adult language, voice, stuttering, hearing and deafness, and communication changes related to the aging process. *No prereq.*

SLA 4210 Anatomy and Physiology of Vocal Mechanisms (4 q.h.)

Offers an in-depth study of the static structure, musculature, and physiology of the speech mechanism. *Prereq.* SLA 4110.

SLA 4310 Language Acquisition (4 q.h.)
Analyzes the emerging semantic and syntactical aspects of language in normal and atypical children. Discusses current theory and research in language acquisition. Requires clinical observations of children with normal and atypical language patterns.

SLA 4312 Phonetics and Developmental Phonology (4 q.h.)

Offers basic training in auditory recognition and symbolization of phonemes and allophones in major American dialects. Stresses static and dynamic articulatory descriptions. Also includes a review of the developmental sequences of phonemic. *Prereq.* SLA 4110 and SLA 4210.

SLA 4315 Introduction to Audiology (4 q.h.)

Focuses on the basic techniques of audiometric testing and hearing conservation, including a review of basic hearing sciences and a prepracticum and laboratory experience in hearing testing.

SOCIOLOGY- ANTHROPOLOGY

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SOA 4100 Physical Anthropology (3 q.h.)

Introduction to elements of physical anthropology, covering such subjects as primates, fossil humans and evolution, problems of heredity and genetics, race and racial classifications. *Not open to students who have credit for SOC 4010.*

SOA 4101 Cultural Anthropology: Kinship Societies (formerly Preliterate Societies) (3 q.h.)

Introduction to sociocultural anthropology through the study of societies that have been called "tribal" or "primitive." Examines a range of contemporary societies that have no class structures, their social and cultural institutions, their subsistence strategies, and their efforts to remain independent people today.

SOA 4102 Cultural Anthropology: State Societies (formerly Industrial Societies) (3 q.h.)

Examines the social relations and cultural dynamics in peasant societies. Discusses the transformation of peasants into workers and the patterns of industrialization in

the post-colonial world. Addresses issues of cultural diversity and social stratification in industrial societies.

SOA 4103 Anthropology Intensive A (6 q.h.)

Same as SOA 4100 and SOA 4101.

SOA 4105 Anthropology Intensive C (6 q.h.)

Same as SOA 4101 and SOA 4102.

SOA 4110 Human Nature: Myths and Realities (3 q.h.)

This course examines debates about whether or not violence, competition, male dominance, and power struggles are inborn in people or to what extent they can be documented as social and cultural creations. Cross-cultural data and data from ape and prehuman societies will be used to address the question. *Prereq.* SOA 4100 or SOA 4101 or SOA 4102.

SOA 4146 Social Anthropology of the Developing World (formerly Peasant Societies in a Changing World) (3 q.h.)
Examines changes affecting traditional peasant cultures in the non-Western and Western worlds. Includes the processes occurring in situations involving culture contact, conquest, and colonialism.

SOA 4155 Individual and Culture (3 q.h.)

Focuses on cross-cultural comparisons of the socialization and acculturation of children and adults with respect to roles, values, and personality. Examines theories and methods used in psychological anthropology.

SOA 4160 Gender Roles and the Family (3 q.h.)

Analyzes popular and scientific notions about sex and the family by examining the social patterning of interactions in our culture, other cultures, and other species. Emphasizes the changing relationships between men and women.

SOA 4221 Culture and Medicine (3 q.h.)
Perspectives on medicine and health care are rapidly changing. As costs skyrocket, alternatives to "curative" medicine are being sought. Uses an anthropological perspective and draws on the vast amount of cross-cultural literature in exploring the impact of sociocultural factors on the incidence, definition, treatment, and prevention of illness as well as the organization of health services.

SOA 4266 Folklore (3 q.h.)

Focuses on Folklore, art, and song in various societies and how they are studied. Examines contemporary American materials.

SOA 4322 Culture Theory (3 q.h.)

What is culture? How do we explain cultural phenomena, including culture change? This course examines various classical and contemporary theories of culture: Boasian, functionalist, structuralist, marxist, post-structuralist, and post-modernist.

SOA 4325 Cultures of the World (3 q.h.)

Explores cultural differences among peoples in societies around the globe and analyzes how diverse cultural patterns can be studied and described.

SOA 4430 Native North American Peoples (3 q.h.)

Past and present circumstances of a number of Native North American peoples are explored.

SOA 4431 African Peoples and Cultures (3 q.h.)

Topics include African geography, prehistory, and culture; the spectrum of societal complexity ranging from Mbuti egalitarianism to Ashanti federation; and the problems of political, economic, and social change in contemporary Africa.

SOA 4434 Latin American Peoples and Cultures (3 q.h.)

Explores the processes of socioeconomic and cultural change in Latin America. Examines a selection of precolonial, colonial, and contemporary societies. For contemporary societies, the focus is on the relationship of local communities (peasant, worker, ethnic) to national cultures and global political and economic structures.

SOA 4470 Religion in Cross-Cultural Perspective (3 q.h.)

Comparative analysis of the rituals, beliefs, and religious institutions of various groups.

SOCIOLOGY

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SOC 4010 Principles of Sociology 1 (4 q.h.)

Introduction to basic concepts and theories relating to the study of people as participants in group life. Emphasizes socialization, culture, social structure, primary groups, family, social stratification, and population. *For SGS students only.*

SOC 4011 Principles of Sociology 2 (4 q.h.)

Continuation of SOC 4010. Emphasizes critical analysis of American society, with particular attention to problems of social, political, urban, and industrial change. *For SGS students only.*

SOC 4100 Roles, Culture, and the Individual (3 q.h.)

Examines basic theoretical perspectives, research methods, and concepts of sociology, including society, status and role, socialization, and social groups. *Not open to students who have credit for SOC 4010.*

SOC 4101 Inequality and Institutions (3 q.h.)

Examines how an individual's experience in society is shaped by cultural institutions and beliefs, and structures of interaction. Topics include patterns of deviance (crime, drugs), gender roles, and sexuality. *Not open to students who have credit for SOC 4010 or SOC 4011. Prereq. SOC 4100 or equiv.*

SOC 4102 Institutions and Social Change (3 q.h.)

Examines important social factors, including business and industry, population and ecology, science and technology, class, and race and ethnic relations. *Not open to students who have credit for SOC 4011. Prereq. SOC 4100 or equiv.*

SOC 4104 Introduction to Sociology Intensive B (6 q.h.)

Same as SOC 4100 and SOC 4101.

SOC 4120 Sociology of Boston (3 q.h.)

The city is a laboratory for exploring the people's search for a lifestyle and the satisfaction of their needs. The city of Boston from the perspectives of environmental development, neighborhood and intergroup relations, institutional services, and symbolic meanings.

SOC 4125 Social Problems (3 q.h.)

Contemporary American social problems and the application of sociological concepts, methods, and principles to these problems are explored.

SOC 4147 Urban Life (3 q.h.)

Topics include various causes, characteristics, and effects of urbanization in several different cultures. Gives specific attention to the problem of urban and suburban living and the changing structure of the city.

SOC 4154 Sex and Gender Roles in Society (3 q.h.)

Explores historical and contemporary developments, examining the ways in which men's and women's changing roles are related to society at large.

SOC 4155 Family Relations (3 q.h.)

Studies the family as a social institution in several selected cultures; family interrelations with political, economic, and educational institutions; and the changing nature of the family.

SOC 4156 Violence in the Family (3 q.h.)

Examines physical, emotional, and sexual violence that occurs in families, emphasizing child and spouse abuse. Analyzes definitions, prevalence, causes, prevention, and treatment of specific cases of violence. Primary focus is on social and policy issues and problems of legal intervention.

SOC 4170 Race and Ethnic Relations (3 q.h.)

Focuses on relationships among various racial, national, cultural, and religious groups, emphasizing the development of black-white relationships in American society. Also covers the problems of contemporary minority peoples in American and other societies.

SOC 4175 Work and Professions (3 q.h.)

Explores the world of work, focusing on the development of occupational cultures, the nature of careers, and the meanings and implications of professionalization. Students are encouraged to do a project on a career they are considering or one in which they have had practical experience.

SOC 4177 Gender in the Workplace (3 q.h.)

This course is designed to present an interdisciplinary exploration of issues related to gender differences and equality in the workplace. It is structured into three sections—theory, history, and policy—to provide real-world and diverse perspectives on the subject. Topics to be discussed include women's voice, gender psychology, gender and historical analysis, race and gender, education and professionalism, comparable worth, the men's movement, the glass ceiling, leadership and management styles, among others.

SOC 4178 Cultural Diversity in the Workplace (3 q.h.)

A study of multiculturalism and diversity at work by focusing on issues such as changing work force composition, international competition, sexism, racism, ageism, and nationalism.

SOC 4185 Deviant Behavior (3 q.h.)

Topics include a variety of social problems and their relation to the organization of society. Pays particular attention to alcoholism, sexual offenses, drug abuse, mental disorders, and other responses to conditions of urban industrial society.

SOC 4186 Social Control (3 q.h.)

Discusses group membership as a determinant of behavior, including analysis of status and role, patterns of authority, power, and group ideology as factors in the evaluation of conduct.

SOC 4190 Juvenile Delinquency (3 q.h.)

Emphasis on factors involved in juvenile delinquency and their implications for prevention, rehabilitation, and treatment.

SOC 4195 Drugs and Society (3 q.h.)

Introduction to the sociology of drugs. Examines social definitions of drugs, conditions of their use, and socialization into drug use. Considers deviant drug use and effects of social control on definitions and use. A range of licit and illicit drugs is considered.

SOC 4202 Sociology of Drinking (3 q.h.)

Exploration of how different groups and societies organize drinking as a social act and the consequences of that organization. Covers the cultural meaning assigned to drinking, the social elements found in all drinking situations, how members of

social groups learn how to drink, and the social and psychological functions of drinking.

SOC 4203 Sociology of AIDS (3 q.h.)

Studies the emergence of HIV and AIDS, the transmission of the disease, and the various effects of the disease on individuals. Also explores government and media reactions to AIDS, racism and homophobia in the public's response to AIDS, and the "moral status" of the disease.

SOC 4205 Law and Society (3 q.h.)

Topics include functions of law in modern society; legislation, litigation, and adjudication as social processes; the legal profession, the courts, and the administration of justice; laws and judicial decisions on controversial social issues; and laws regulating domestic, industrial, and other major social relationships.

SOC 4215 Medical Sociology (3 q.h.)

Examination of sociological concepts and research relating to patterns of behavior in the areas of health and disease. Emphasizes the family, community, medical organizations, class, and status as social subsystems related to the field of health.

SOC 4225 Social Gerontology (3 q.h.)

Analyzes issues and questions of aging, with special attention to social and economic consequences of the aging process, such as retirement and productivity, healthcare problems, nursing home residences, widower- and widowhood, and the approach of death. Gives examples relating to aging in other cultures in a search for new answers to social problems of aging in the United States. Discusses how to anticipate, cope with, and even prevent problems of aging that concern self, family, and clients or patients.

SOC 4226 Work, Leisure and Aging (3 q.h.)

Includes discussion of theory and practice of leisure time activities as they relate to the older adult. Examines the social, cultural, and economic aspects of work, including housework, and the meaning of leisure. Explores various types of leisure activities and resources, as well as how to build skills and design and implement activities.

SOC 4235 Death and Dying (3 q.h.)

Examines the treatment of death and dying, including problems faced by health-care professionals, family members, institutions, the funeral industry, and the dying themselves. Covers cross-cultural perspectives, the social distribution of mortality, the changing nature of death, and the ethical problems in determining life and death, with particular attention to such issues as abortion, suicide, and ceasing medical intervention.

SOC 4240 Sociology of Human Service Organizations (3 q.h.)

Explores the contradiction between what human service organizations set out to do and what they actually accomplish. Includes how human service organization goals are defined, how clients become labeled, and the societal constraints placed on clients, workers, and the organizations.

SOC 4241 Human Services Professions (3 q.h.)

Covers human services, viewed from the perspectives of the recipient, the worker, and the society at large. Includes analysis of why they are needed, how agencies and programs have developed, and the basic skills, attitudes, values, and knowledge required of the human service worker today.

SOC 4245 Poverty and Inequality (3 q.h.)

Historical analysis of American class and ethnic differences, drawing on comparisons with other countries. Includes critical evaluation of sociological research and theories relating to the causes and effects of poverty and societal responses to it. Suitable for students in applied fields, such as nursing, criminal justice, education, allied health, pre-med, and pre-law.

SOC 4255 Sociology of Sport (3 q.h.)

Topics include games and sport from a sociological perspective, with particular reference to contemporary American society. Includes the role of play in modern society, the social organization of specific games and sports, and the relation of organized sport to the larger society.

SOC 4260 Introduction to Social Work Practice (3 q.h.)

Explores the functions of the helping profession of social work, its settings, and methods. Covers specific techniques, such as interviewing, history-taking, and recording skills.

SOC 4276 Popular Culture (3 q.h.)

Significance of expressions of popular culture, such as film, television, music, and literature, is explored. Examines media production, organization, technology, and audience consumption. Also covers the relationship between popular culture and existing socio-economic institutions.

SOC 4290 Sociology of Globalization (3 q.h.)

Studies the impact of globalization on societies and on directions of change. Includes such issues as nationalism, human rights, and cultural trends.

SOC 4300 Social Theory 1 (3 q.h.)

Historical survey of sociological theorists, including the work of de Tocqueville, Comte, Marx, Durkheim, and Cooley. *Prereq. Instructor's permission or 12 q.h. in Sociology-Anthropology.*

SOC 4301 Social Theory 2 (3 q.h.)

Covers major theoretical issues in sociology. Discussion concentrates on systematic questions and topics rather than on particular theorists, but material is drawn from such theorists as Weber, Simmel, Thomas, Mannheim, Merton, and Parsons. *Prereq. SOC 4300 or equiv.*

SOC 4302 Social Theory 3 (3 q.h.)

Seminar focuses on questions of theoretical interest, such as the problem of order, the problem of change, and the role of the individual in change. Students present papers in class. *Prereq. SOC 4301 or equiv.*

SOC 4310 Class, Power, and Social Change (3 q.h.)

Discusses theories of social equality and inequality as applied to the exercise of power and to the growth and development of social movements and group conflict. Takes a large-scale, social-change point of view.

SOC 4320 Statistics for Social Sciences (3 q.h.)

Designed for criminal justice, history, political science, and sociology majors, this course studies the uses of statistics. Cov-

ers methods of tabulating, presenting, and summarizing data, including probability, sampling, the basic descriptive and inferential statistics, including measures of central tendency, measures of correlation, and test of significance. (*Not open to students who have completed SOC 4332.*) *Prereq.* MTH 4111.

SOC 4331 Research Methods: Generating and Investigating Research Problems (3 q.h.)

Designed for criminal justice, history, political science, and sociology majors, this course explores fundamental concepts for generating and investigating research problems. Examines methods for basic and applied research. Emphasizes theory construction and includes data gathering, using research techniques such as interviews, questionnaires, observation, and content analysis. Examines issues of measurement and causal reasoning. Students design a small study. *Prereq.* SOC 4320.

SOC 4333 Advanced Research Methods (3 q.h.)

Students complete the study designed in SOC 4331, focusing on the design, execution, analysis, and reporting of the investigation. Focuses on ethics and politics of research and interrelationship of social action, social research, and theory building. Culminates with the presentation of research papers. *Prereq.* SOC 4331.

SOC 4805 Field Work in Sociology (6 q.h.)

Designed to enhance career development by allowing students to earn credit for the application of their academic backgrounds to practical problems in the workplace. See page 219 for details. *Prereq.* completion of 15 q.h. in Sociology and Program Director's approval.

SOC 4815 Advanced Tutorial 1 (3 q.h.)
Opportunity to take an upper-level course independently. See page 219 for details. *Prereq.* 87 q.h.

SOC 4816 Advanced Tutorial 2 (3 q.h.)
See SOC 4815.

SOC 4820 Honors Program 1 (4 q.h.)
Opportunity to undertake an in-depth research study project. See page 219 for details. *Prereq.* 96 q.h., 3.5 q.p.a.

SOC 4821 Honors Program 2 (4 q.h.)
See SOC 4820.

SOC 4822 Honors Program 3 (4 q.h.)
See SOC 4820.

SOC 4830 Independent Study 1 (3 q.h.)
Opportunity to undertake special research. See page 219 for details. *Prereq.* 96 q.h., 3.0 q.p.a.

SOC 4831 Independent Study 2 (3 q.h.)
See SOC 4830.

SOC 4832 Independent Study 3 (3 q.h.)
See SOC 4830.

TECHNICAL COMMUNICATIONS

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TCC 4101 Technical Writing 1 (3 q.h.)
Introduction to basic technical writing skills, emphasizing selecting and organizing data. Includes audience analysis, research techniques, and descriptions of objects, mechanisms, and processes. Provides practice in descriptive writing, classification and definition, paragraphing, and preparing technical documentation outlines. Includes frequent technical writing exercises and projects applicable to both software and hardware writing tasks. *A writing proficiency test is given at the first class meeting.*

TCC 4102 Technical Writing 2 (3 q.h.)
Application of the information gathering, organizational, and technical writing skills acquired in TCC 4101 to more advanced projects. Extensive practice in formatting, organizing, writing, and editing technical reports. *Prereq.* TCC 4101.

TCC 4103 Technical Writing (Intensive) (6 q.h.)
Same as TCC 4101 and TCC 4102. *A writing proficiency test is given at the first class meeting.*

TCC 4105 Editing for Science and Technology (3 q.h.)
Covers fundamentals of editing as they apply to scientific, technical, and engineering writing. Examines the role of the editor in business, industry, and the sciences; basic editorial services such as proofreading, copy and content editing, production editing, and project editing; analysis and critique of manuscripts; work with authors; the editor as writer and interviewer; and science interpretation and technical translation. Accelerated work

for students already skilled in spelling and grammar. *Prereq.* TCC 4101 or instructor's permission.

TCC 4106 Advanced Editing for Science and Technology (3 q.h.)
Continuation of TCC 4105. *Prereq.* TCC 4105.

TCC 4110 Technical-Promotional Writing (3 q.h.)
Explores structure, style, and graphic presentation of technical-promotional writing. Students are trained to combine technical knowledge and writing skills in developing quality technical brochures, articles, product catalogs, demonstration kits, slide presentations, and Web pages. *Prereq.* TCC 4101 or instructor's permission.

TCC 4301 Computer Software Technical Writing 1 (3 q.h.)
Introduction to the tasks and problems unique to software technical writing. Includes review of fundamental software concepts, the role and importance of software documentation, component parts of software technical manuals and their purposes, tutorial and reference functions of manuals, research tools for manual writing, and the writing process itself. *Prereq.* TCC 4101 and MIS 4115 or instructor's permission.

TCC 4302 Computer Software Technical Writing 2 (3 q.h.)
Continuation of TCC 4301. *Prereq.* TCC 4301.

TCC 4303 Seminar in Software Technical Writing (3 q.h.)
An advanced case-study seminar on contemporary problems in technical writing for the working or prospective writing professional. Emphasizes integrating the viewpoint of the software developer with the task-oriented needs of the end user. Includes system manual design, computer design, modularity, and system evolution. *Prereq.* TCC 4302 or instructor's permission.

TCC 4304 Computer Software Technical Writing (Intensive) (6 q.h.)
Same as TCC 4301 and 4302. *Prereq.* TCC 4101 and MIS 4115 or instructor's permission.

TCC 4311 Documentation Design 1 (formerly Instruction Manual Writing 1) (3 q.h.)

Introduction to the fundamentals of creative technical documentation design including the theory and practice of manual design, organization, and content. Covers copyright law, product liability, graphic design, readability, manual specifications and standards, illustrations, and reproduction techniques. Emphasizes hardware operations manuals. Includes individual and class design and writing projects. *Prereq. TCC 4101 and TCC 4102.*

TCC 4312 Documentation Design 2 (formerly Instruction Manual Writing 2) (3 q.h.)

Application of skills acquired in TCC 4311 to an entry-level documentation design project. Students elect individual or group writing and production projects for high-technology equipment or systems lacking adequate documentation. Includes instruction in writing safe, legible operating instructions and descriptions of installation procedures, principles of operation, and maintenance. Also covers manual changes and updates. *Prereq. TCC 4311 or instructor's permission.*

TCC 4313 Documentation Design Intensive (formerly Instruction Manual Writing Intensive) (6 q.h.)
Same as TCC 4311 and TCC 4312. *Prereq. TCC 4101 and TCC 4102.*

TCC 4320 Proposal Writing (3 q.h.)
Background in the preparation of proposals, including how to analyze a request for proposal or bid set. Introduces the various types of proposals generated by industry and provides an opportunity to prepare a proposal in a simulated situation, through role playing and participation on a proposal preparation team. Includes considerable analysis and writing practice. *Prereq. TCC 4102 or instructor's permission.*

TCC 4330 The Business and Technical Presentation (3 q.h.)
Application of the principles of technical communication to audiovisual presentations. Includes audience analysis, techniques of organization, script preparation, media selection, the design and production of visuals, the influence of physical factors on communication, and the elements of effective delivery.

TCC 4335 Introduction to On-line Documentation (3 q.h.)
Designed to give students essential background in developing field of hypertext. Topics include theory and practice, authoring systems, hypermedia topologies and user navigation, hypermedia path mechanisms, and hypertext-based writing tools. *Prereq. TCC 4101 and 4102.*

TCC 4336 Medical Writing (3 q.h.)
Focuses on the scope of medical communications, the role of technology and the medical communicator, patient education, clinical trial reporting, technical/legal issues such as FDA and UL approvals, pharmaceutical writing, and medical editing. *Prereq. TCC 4101 and 4102.*

TCC 4337 Writing for the Biotechnology Industry (3 q.h.)
Emphasizes writing in the bio-pharmaceutical industry, including articles for scientific journals; research grants and venture capital proposals; clinical trial design and management; FDA, FTA, EU, OSHA, EPA, and ISO submissions, registrations, and documentation. Also covers marketing and business communication.

TCC 4340 Documentation Development and Completion (3 q.h.)
In this final course before graduation, students apply organizational and communications skills acquired in the technical writing program. Each student is responsible for finding a "real-world" product that needs technical documentation. Working with the instructor, the student then develops the documentation from an initial outline to a final completed manual that will be used with the product. *(Not a regularly scheduled course. Students must contact Liberal Arts Office to register to work with an instructor.)*

TCC 4802 Advanced Tutorial 1 (3 q.h.)
Opportunity to take an upper-level course independently. See page 219 for details. *Prereq. 87 q.h.*

TCC 4803 Advanced Tutorial 2 (3 q.h.)
See TCC 4802.

TCC 4805 Field Work in Technical Communications (6 q.h.)
Designed to enhance career development by allowing students to earn credit for the application of their academic backgrounds to practical problems in the workplace.

See page 219 for details. *Prereq. completion of 18 q.h. in Technical Communications and Program Director's approval.*

THEATRE

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THE 4101 Introduction to Theatre (3 q.h.)

How a theatrical performance is made through the eyes of those who make it: writers, producers, actors, designers, and audience. Designed to increase the student's awareness of theatre as a business as well as to provide a basis for enjoyment of theatre as an art form dealing with ideas and emotion.

THE 4120 Acting Skills for Professionals (formerly Acting for the Non-Actor) (3 q.h.)
Shakespeare said "All the world's a stage." We are all actors in our private and professional lives. Basic acting principles and performance experiences can benefit anyone who interacts with other people. This course deals with stress, relaxation, presentation of self, status in relationships, and performance anxieties. Acting exercises assist the student in finding methods for dealing comfortably and positively with real-life situations.

THE 4140 Introduction to Acting 1 (3 q.h.)
Physical preparation for the actor, including basic stage movement and deportment, control of the stage voice, analysis and establishment of characterization through observation and awareness of the body, and improvisations and short scenes.

THE 4141 Introduction to Acting 2 (3 q.h.)
Psychological preparation for the actor, including analysis and establishment of characterization through memory, emotion, imagination, and recall; analysis of specific roles; the creation of a character analysis book; and improvisations and short scenes. *Prereq. THE 4140 or instructor's permission.*

THE 4235 American Musical Theatre (3 q.h.)
A historical survey and analytic study of musicals.

THE 4250 Theatre Movement (3 q.h.)
Deals with relaxation, concentration, and the use of the body as a means of communication.

THE 4260 Voice Production (3 q.h.)
Focuses on breathing, vocal technique, and articulation.

TRANSPORTATION

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TRN 4301 Elements of Transportation
(formerly Elements of Transportation 1)
(3 q.h.)

Introduction to regulatory, economic, and management aspects of transportation. Covers concerns of shipping industry, government, and carriers. Includes history of cost, rate-making, operations, entry, mergers, and intercity passenger and cargo carriage. Essential to students in business, law, or government.

TRN 4302 Introduction to Logistics
(formerly Physical Distribution Management 1) (3 q.h.)

Introduction to the logistical role in the business structure. Focus is on time and place utility for distribution of goods. Covers transportation alternatives, inventory control, warehousing, location factors, and customer service levels. Contemporary texts and, where appropriate, cases are used.

TRN 4304 Advanced Logistics (formerly Physical Distribution Management 2)
(3 q.h.)

Analyzes in greater depth the role and activities of those involved in business decision making, emphasizing the transportation planning, setting customer standards, and locations decisions in the design and operation of distribution systems. Contemporary texts, problems, and appropriate cases are used. *Prereq.* TRN 4302.

TRN 4305 Traffic Management
(formerly Traffic Management 1: Rates and Tariffs) (3 q.h.)

Includes the interpretation and use of tariffs. Examines classifications, ratescales, tariff rules, rate-making procedures, and ICC law and practice. *Prereq.* TRN 4301.

TRN 4325 Management of Warehouse Operations (3 q.h.)

Management of warehouses is analyzed. Includes site selection, construction, finance, operations, measurement of performance, and warehouse technology.

TRN 4342 Transportation Loss, Damage and Other Claims (3 q.h.)

Covers rules, regulations, and other pertinent elements of transportation claims resulting from the loss or damage of cargo, overcharges and undercharges, and related carrier and shipper activities.

TRN 4350 International Transportation and Distribution Management (3 q.h.)

Examines the safe and efficient overseas transportation of products by air or water. Covers major indirect supporting business and agencies involved in the international movement of people and goods.

TRN 4600 Honors Program 1 (4 q.h.)

Opportunity to undertake an in-depth research study project. See page 219 for details. *Prereq.* 96 q.h., 3.5 q.p.a.

TRN 4701 Independent Study 1 (3 q.h.)

Opportunity to undertake special research. See page 219 for details. *Prereq.* 96 q.h., 3.0 q.p.a.

TRN 4702 Independent Study 2 (3 q.h.)

See TRN 4701.

TRN 4800 Advanced Tutorial 1 (3 q.h.)

Opportunity to take upper-level course independently. See page 219 for details. *Prereq.* 87 q.h.

TRN 4801 Advanced Tutorial 2 (3 q.h.)

See TRN 4800.

Graduate Course Descriptions

HUMAN RESOURCES MANAGEMENT

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HRM 3100 Organizational Behavior (3 q.h.)

Studies the behavioral dynamics of the workplace and examines the relationship of individuals and groups to the organization. Major topics include motivation, perception, interpersonal communication, leadership, power and influence, decision making, group dynamics, team building, corporate culture, and socialization. Emphasizes practical application of specific skills, theories, and concepts. *For Graduate Students only.*

HRM 3110 Total Compensation (3 q.h.)

Investigates the procedures used to determine the compensation package, including merit and incentive plans, wage and salary structure, and compensation methods. Other topics include managing indirect compensation and the importance of providing innovative, comprehensive, and cost-efficient benefits packages; the impact on compensation and benefits of re-engineering; team-based reward systems; flexible benefit plans; new ways of packaging compensation and benefits; and teaching employees about indirect compensation. *For Graduate Students only.*

HRM 3120 Strategic Recruitment, Training and Performance Management (3 q.h.)

Topics covered include strategies for attracting and keeping the best people; assessing the selection process; helping managers to clarify their needs; interviewing and selection; communication; negotiation; performance appraisals; and evaluating training and retraining needs. *For Graduate Students only.*

HRM 3130 Employee Rights and Employer Obligations (3 q.h.)

Using case studies, examines the legal relationship between employer and employee, addressing issues and topics such as discrimination, affirmative action, the Americans with Disabilities Act, sexual harassment, health and safety, AIDS in the

workplace, compliance issues, and legal issues related to downsizing and terminations. *For Graduate Students only.*

HRM 3140 High-Performance Human Resources Systems and Development (3 q.h.)

Examines the human resources management role as internal consultants, problem solvers, and change agents in the organization. With organizations changing so rapidly, there is a tremendous need to manage information, technology and systems, people, and the overall organization toward customer- or client-centered effectiveness. Linking human resources planning to the strategic business plan is vital to meeting changing organizational demands for adaptation and improvement. This course examines the critical role played by human resources managers in facilitating transition, growth, adaptation, and organizational learning. *For Graduate Students only.*

HRM 3150 Change, Challenge, and Competence (3 q.h.)

Human resources managers and professionals must address new tensions and challenges arising from employer demands for higher productivity within complex, increasingly competitive environments. Topics covered include changes in the work force, cultural diversity, changing work/family patterns, worker burnout and stress, and the need for workplace flexibility. Also addresses changes in the workplace, from internationalization to reorganization and the impact of downsizing. *For Graduate Students only.*

MANAGEMENT INFORMATION SYSTEMS (STRATEGIC INTERNET MANAGEMENT)

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Please note: Computer labs for students' completion of projects are available at Main Boston, Batterymarch, Burlington, and Dedham campus locations. Students

may also complete projects on any IBM or IBM-compatible computer available to them.

MIS 3150 Internet Solutions (3 q.h.)

Students learn how to utilize the Internet to support an organization's operations by taking advantage of the Web's potential to reduce costs and improve effectiveness. This course will emphasize the integration of Internet solutions with existing applications, systems, and processes, along with incorporating Internet capabilities into the planning and decision process. Internet tools and services will also be examined, particularly as they relate to business activities, such as purchasing, on-line recruitment, inventory management, and Internet conferencing. *For Graduate Students only.*

MIS 3155 Managing Internet Projects (3 q.h.)

This course will emphasize project management processes and techniques and their application to small and large Internet projects specifically. Students will learn to manage all phases of an Internet project, beginning with the development of a project vision and concluding with project evaluation and reporting. Other issues covered in this course include risk analysis, team building, cost estimation and management, procurement, and contract management. *For Graduate Students only.*

MIS 3160 Web-based Marketing (3 q.h.)

Students will learn how to capitalize on the Internet's ability to support and enhance marketing activities, such as marketing research, segmentation, differentiation, advertising, and post-sales support. Emphasis is placed on the strategic marketing plan and the development of an effective Web-based marketing campaign. Students will also learn how to evaluate Internet marketing initiatives, such as Web-site deployment and banner advertising. This course will incorporate case studies and require students to develop an Internet marketing plan. *For Graduate Students only.*

MIS 3165 Internet Law (3 q.h.)

The Internet does not function within political borders and creates numerous complexities for those wishing to utilize the Web to support business activities. Complicating the legal issues further is the lack of a comprehensive and coherent national or international Internet policy. In this course, students will become familiar with publishing and commerce laws relevant to the Internet, as well as strategies for dealing with areas of ambiguity. Students will also gain an understanding of criminal and civil liability as they relate to the Internet. *This course cannot be used as a substitute for MSC 3952. For Graduate Students only.*

MIS 3170 Internet Systems and Tools (3 q.h.)

This course will introduce students to object-oriented technologies and Internet architecture, as well as the infrastructure needed to support Internet activities. Students will learn how to assess organizational needs and evaluate existing capabilities. On-line databases and their relationship to both Internet and intranet utilization will also be examined. Additional topics will include outsourcing, virtual hosting, and transaction security. *For Graduate Students only.*

MIS 3175 Electronic Commerce Strategy (3 q.h.)

This is a capstone course that examines the Internet and related technologies as a means for creating new models for business success. The course begins with a managerially oriented technological overview to introduce the students to the environment that enables e-commerce to succeed. Then the primary focus is on how a company can develop strategic Internet plans that effectively leverage new capabilities to alter and improve internal and external functions and activities, including communication, advertising, order processing, and order fulfillment (transactions, billing distribution, and collection). We will study how companies have used the Web, Extranets, and Intranets to reengineer relationships with internal and external constituents, including customers, suppliers, distributors, dealers, strategic partners, regulators, and departments within the company. E-commerce activities include both business-to-consumer communication and transactions as well as business-to-business ac-

tivities, such as on-line corporate procurement. Limitations and future capabilities will also be explored. *For Graduate Students only.*

NONPROFIT MANAGEMENT

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NPM 3100 Organization and Management of Nonprofit Organizations (3 q.h.)

An overview of fundamental management principles and concepts as applied to nonprofit organizations. Topics include organizational development, team building, board and staff functions and leadership, managing staff and volunteers, program planning and evaluation, public relations and marketing, communications, decision-making, and strategic planning. *For Graduate Students only.*

NPM 3110 Legal and Governance Issues in Nonprofit Organizations (3 q.h.)

This course examines the laws affecting the establishment and operation of nonprofit organizations, including incorporation and tax exempt status, general liability, regulatory compliance/reporting, and contracts. In addition, the roles, responsibilities, processes, and powers of boards of directors are explored, including issues of board liability. Using case studies, students examine some of the ethical questions and conflicts faced by nonprofit managers. *For Graduate Students only.*

NPM 3120 Financial Management for Nonprofit Organizations (3 q.h.)

Using case studies, this course introduces students to major financial management concepts and techniques required for effective management of nonprofit organizations. Topics include nonprofit accounting, budget management, revenue forecasting, financial statements and reports, tax issues, grant compliance, internal expenditure control, audits, cash flow management, long-term financial planning, endowment management, and capital financing. *For Graduate Students only.*

NPM 3130 Fundraising and Development for Nonprofit Organizations (3 q.h.)

This course provides an overview of the major sources of funding for nonprofit organizations, the fundraising manager's role in development planning, donor profiles, proposals and case statements, foundation and corporate philanthropy, government grant and contract programs, special events, marketing and public relations functions, direct mail and membership campaigns, planned giving, major gifts, and capital campaigns. Ethical and legal issues related to fundraising are also addressed. *For Graduate Students only.*

NPM 3140 Grant and Report Writing (3 q.h.)

An introduction to grants and grant proposal writing, topics include effective research, creating a plan for the program, elements of a good proposal, components of the proposal package, and strategies for getting a proposal read by a foundation or corporation. Students will have the opportunity to research an RFP or identify a foundation, write a grant proposal of their choosing, and ready it for submission to a funding source. *For Graduate Students only.*

NPM 3150 Human Resources Management in Nonprofit Organizations (3 q.h.)

This course will examine methods of developing, supervising, motivating, and recognizing volunteers and staff; communicating effectively within an organization; staff-volunteer relations; and stress, conflict, and crisis management. HRM topics, such as legal employment issues, recruiting and hiring practices, diversity in the workplace, compensation and benefits, performance appraisal, and discipline, will also be explored. *For Graduate Students only.*

Continuing Education Course Descriptions

BUSINESS PERFORMANCE SERIES

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BPS 5500 Conflict Management and Resolution (1.4 CEUs)

In this seminar participants will learn the symptoms and sources of conflicts. More importantly, participants will learn to resolve, prevent, utilize, and manage conflict that arises within and among employees. Conflict management techniques, as they apply to non-employee constituencies, will also be addressed.

BPS 5501 Coaching for Performance (1.4 CEUs)

Today's successful manager needs to understand how to effectively capitalize on their employees and encourage productivity through individual and team development. This seminar will teach effective team building skills along with essential motivation tools. Participants will also learn how to empower employees and create a climate that encourages results.

BPS 5502 Effective Performance Reviews and Decisions (1.4 CEUs)

Too often the performance appraisal is seen by managers as an unpleasant and meaningless chore. In this seminar, participants will learn to capitalize on the evaluation process and utilize it for improving and maintaining performance standards. Specific tools for providing effective feedback that will maximize performance will be taught. In addition, the role of the evaluation in the decision-making process will also be examined.

BPS 5503 Budget Essentials (1.4 CEUs)

Various budgeting practices are reviewed along with budget creation and maintenance. Techniques for tracking and reporting budget status will be examined, along with tools for making decisions.

BPS 5504 Action Planning (1.4 CEUs)

Participants will learn how to develop action plans that achieve results. Both operational and strategic planning issues will be discussed. Proven implementation techniques will be examined, along

with methods of assessment. In addition, participants will learn to set meaningful results-oriented objectives.

BPS 5551 Web Site in a Day (.7 CEUs)

Learn how to create HTML documents for the Web. This seminar will utilize a hands-on approach. Participants will study navigation methods, HTML formatting, hosting, and security issues, as well as how to use HTML editors.

BPS 5552 Effective Internet Search Techniques (.7 CEUs)

Refine your search engine strategies so that you can maximize your effectiveness. Learn how to use newsgroups as a research tool.

BPS 5553 Promoting Your Web Site (.7 CEUs)

Learn to make the best use of banner advertising and searchable databases. Participants in this seminar will also learn how to maintain search engine listings. Additional topics will include effective use of e-mail and creating on-line communities.

BPS 5554 Creating Outstanding Presentations (.7 CEUs)

Participants in this seminar will learn basic and advanced PowerPoint skills and presentation techniques. Topics include color and design considerations, font selection, clipart selection and customization, and effective integration of technology.

BPS 5555 Managing Your Projects with Software (.7 CEUs)

This seminar uses a hands-on approach to learning MS Project. Participants will learn how to enhance their effectiveness through more efficient scheduling and planning tools available with MS Project.

BPS 5556 Getting Organized with Outlook (.7 CEUs)

Tired of missing appointments or losing contacts? Participants in this seminar will learn how to enhance their effectiveness with Microsoft's Outlook software. Topics covered will include scheduling, contact files, e-mail capabilities, and calendar features.

BPS 5557 Effective Use of Windows CE (.7 CEUs)

In this seminar, participants will learn how to utilize CE based palmtop and hand-held computers. Topics will include data transfer, faxes, Pocket Word, Pocket Excel, Pocket PowerPoint, and Internet Explorer. In addition, downloading software from the Web and expanding your HPC's capabilities will also be covered.

BUILDING DESIGN AND MANAGEMENT

781.320.8026

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CIV 5010 Cost Estimating and Bidding Workshop (2.2 CEUs)

Hands-on course in which participant prepares an estimate and bid. Traces the estimate process from receipt of client information to submission of a completed bid. Various options for cost savings and alternative estimating systems will be explored. *Prerequisites: Quantity Takeoff for Estimating (CIV 5281), Unit Price Estimating (CIV 5280), and Advanced Topics in Estimating (CIV 5314).*

CIV 5051 Computer Basics for Building Technology (2.0 CEUs)

This hands-on, lab-based course provides an introduction to the concepts of how computer equipment and programs are used to solve business problems. Introduces standard commercial software tools applicable to the solution of building design, construction, and facilities management business problems. For classroom exercises, Microsoft Windows 95, Microsoft Office Suite (MS-Word, MS-Excel, MS-Outlook) and Netscape will be used. *This class requires homework be done on a computer with the above mentioned software. No prior computer experience or knowledge is assumed.*

CIV 5052 Computer Applications for Building Technology (2.0 CEUs)

This hands-on, lab-based course provides more extensive information on how computer programs are used to solve

business problems. Building on the Computer Basics for Building Technology course, participants will develop stronger word processing and spreadsheet skills, a database introduction, and graphic presentation skills. For classroom exercises, Microsoft Windows 95 and Microsoft Office 97 Professional (MS-Word, MS-Excel, MS-Access and MS-PowerPoint) will be used. *This class requires homework be done on a computer with the above mentioned software. Prerequisite: CIV 5051 or equivalent knowledge.*

CIV 5100 Cost Effective Design/Build Construction (2.6 CEUs)

Topics discussed include marketing, design review and coordination, contracts, the "how-to" of project management, client interface, scheduling, procurement, cost accounting, insurance, progress payments and close-outs. Useful to contractors who want to increase sales volume or level out uneven business inputs of traditional bid work. Also for architects, engineers, and entrepreneurs.

CIV 5108 Design of Building Plumbing Systems (3.0 CEUs)

Introduces building plumbing systems design for use in residential and commercial buildings. Learn calculations, design and layout of systems, including water supply and distribution, wastes, vent and drainage systems, commercial and medical gases. Focus is on relevant aspects of the Massachusetts State Plumbing Code. Participants have an opportunity to work with and implement the statutes in the design of several complete plumbing systems.

CIV 5109 Design of Building Electrical Systems (3.0 CEUs)

Introduces the design of electrical systems for residential and commercial structures. Topics include the principles of electricity, single-phase and three-phase power, voltage selection, branch and feeder circuit design and calculations, transformer and panelboard design, building load analysis, motor feeder calculation, power factor correction, and lighting fundamentals. Electrical Code article referenced where required.

CIV 5111 Architectural Technology and Building Materials (3.0 CEUs)

Introduces materials and methods used in building construction. Light and heavy

construction are reviewed, with attention to foundations, framing, roofing, interior and exterior finish, insulation, hardware, and painting. Topics include wood materials, concrete and masonry construction, steel, acoustical and insulation materials, and glass. How to select materials based on application, cost, CSI format, and other factors is discussed.

CIV 5114 Construction Law (2.5 CEUs)

Topics include principles of contract formation; roles and principal obligations of the owner, lenders, design professionals, construction manager, and contractors; types of contracts used in construction practice; bidding for private and public work; construction bonds; standard AIA, AGC, and other contract forms; rules for interpreting contracts; authority and responsibility during the construction phase; and arbitration/litigation as a means of resolving disputes. Selected chapters of the Massachusetts General Laws relating to construction are discussed. Participants should have experience in some aspect of the construction industry.

CIV 5115 Construction Cost Estimating and Bidding (3.0 CEUs)

Introduces construction cost estimating from receipt of plans and specifications to taking off the quantities and estimating materials and labor. Topics include subcontractor quote review, interpretation of contract documents, assessing overhead costs, determination of profit, overhead factors, adjustments, and bidding strategies. *Prerequisite: Construction Blueprint Reading (CIV 5170) or ability to read blueprints.*

CIV 5119 Managing Construction Contracts (2.5 CEUs)

Focuses on improved methods of planning, forming, administering, and monitoring contracts; uses a systems approach to contract planning and formation. Introduces and examines change orders, disputes, schedule delays, and claims.

CIV 5126 Understanding the Massachusetts State Building Code (2.2 CEUs)

Highly recommended for architects, engineers, legal and insurance professionals, building owners and managers, and anyone interested in learning how the construction of

buildings is regulated in Massachusetts. Course provides an overview of the detailed construction requirements of the Massachusetts State Building Code with special emphasis placed on the following: pertinent laws relating to construction; use and occupancy classifications; construction types; height and area limitations; means of egress; fire suppression and alarm systems; dead, live, wind, and earthquake loading criteria; energy conservation; renovation of existing buildings; and construction of one- and two-family dwellings. Also addresses the administration of the Code, including the building permit process; appealing the actions of a building official; and the role of the building official, registered professional, contractor, and owner in the construction process.

CIV 5134 Scheduling Construction Projects (2.5 CEUs)

Designed for project managers, schedulers, job-site managers, foremen, and small business owners. Topics include introduction to project scheduling tools such as Gantt Charts, PERT, CP/M, and network analysis from the viewpoint of project planning and control; computer applications and techniques; project "crash" techniques as applied to cash flow and the avoidance of penalties. A basic knowledge of the building trades is recommended.

CIV 5168 Construction Supervisor's Building Code Review (2.2 CEUs)

This course is designed to prepare participants for the Massachusetts Construction Supervisor's License Exam. Topics include code administration, materials and design, safety, site work, mechanical systems, fire protection, and finished roofing systems.

CIV 5170 Construction Blueprint Reading (2.5 CEUs)

Develops basic skills for reading a set of architectural working drawings. Areas covered include dimensions, symbols, conventional representation, and abbreviations. The use of the architectural scale and scaling is covered.

CIV 5172 Real Estate Inspections 1 (Residential) (2.5 CEUs)

Prerequisite to all Real Estate Inspections courses and to the certificate program. Overview of the residential building inspections process. Topics include

structural inspections, wood decay, and woodboring insect damage, report writing, and tools and techniques for inspection of residential properties.

CIV 5174 Supervisory Management (2.5 CEUs)

The four functions of management planning, directing, organizing, and controlling. The course surveys various styles of management and the role of the manager within the business. Topics include delegating authority, communication, organizing, motivating employees, selecting and appraising employees, leading employees, managing the boss, conducting meetings, handling problem employees, exercising control over productivity, quality and safety, team building, and handling personal and employee stress.

CIV 5187 Accounting for Construction Management (2.5 CEUs)

Designed to acquaint the non-accountant with basic accounting techniques widely used in business today. Emphasis is on using the job order cost system for interpreting balance sheets, income statements, and managing material, labor, and overhead.

CIV 5188 Subsurface Sewage Systems Design (2.5 CEUs)

Introduces the design of subsurface sewage systems for residential and commercial use in accordance with Title 5 of the Commonwealth of Massachusetts Environmental Code requirements for sanitary sewage disposal. Instruction is given in the sizing and selection of septic tanks, leaching pits, galleries, dosing chambers, pumps, and pump vaults. Design of drainage structures, topographic plan development, and soil analysis for sewage disposal are discussed.

CIV 5220 Electrical Inspections (2.6 CEUs)

Concentrated study of residential electrical systems. Reviews the principles of electricity and instructs in the calculation and analysis of building electrical leads. Discussion of the current Massachusetts Electric Code and its application to one- and two-family dwellings.

CIV 5221 Electrical Cost Estimating (2.2 CEUs)

Outlines the two-part estimating process (labor and maintenance) in general terms

and identifies some general principles that apply to every electrical estimate. A simple estimating package is given as part of the course.

CIV 5225 Basic Land Surveying (2.5 CEUs)

Introduces land, building, and utilities surveying. Principles and applications of the right triangle, oblique triangle, and simple horizontal curves as related to building layouts, simple roadway construction, and sewer and water systems. Basics of land records research are reviewed and bearing and angle determinations and applications are examined. Four to eight hours field lab with survey equipment.

CIV 5228 Principles of Facilities Management 1 (2.2 CEUs)

This course attempts to link and integrate the specialized technical and engineering skills that form facilities management and that are presented in the certificate. Examines the various practices that combine principles of engineering sciences, architecture, human behavior, and business administration to create facilities management.

CIV 5229 Principles of Facilities Management 2 (2.2 CEUs)

An extension and elaboration of the topics introduced in Principles of Facilities Management I (CIV 5228). Emphasis on case studies produced by both the instructor and the participants. Topics covered include risk and reward, continuous quality improvement, and human resource management. *Prerequisite: Principles of Facilities Management 1 (CIV 5228) plus a commitment to active discussion.*

CIV 5230 Construction Blueprint Reading for Estimators (2.2 CEUs)

Develops basic skills necessary for reading and understanding a set of construction documents. Areas covered include symbols and abbreviations, floor plans, structural plans, elevation views, section views, detail views, site plans, and mechanical, electrical, and plumbing plans. Emphasis on the cross-referencing of documents and specifications to become familiar with the location of information.

CIV 5232 Landscape and Grounds Management (1.1 CEUs)

Designed for those who maintain either

small or large areas. Explores money saving tips on equipment, fertilizer, and the use of proper design to cut maintenance costs. Also, discussions on safety, scheduling, flower planting, types of grasses and shrubs, and snow removal. Fall and spring classes will include a site survey of the school grounds.

CIV 5237 Water Supply/Water-based Suppression Systems (1.0 CEUs)

Reviews the essential water supply information requirements necessary for the design of a water-based suppression system, including how to conduct and evaluate hydrant flow test results (graph and calculation methods). Loop main hydraulic analysis, fire service piping and materials (underground), water tanks, testing and flushing requirements and procedures; and hydraulic gradients will be covered. Topics will be presented as described in the latest edition of N.F.P.A.-24, *Installation of Private Fire Service Mains and Their Appurtenances*; N.F.P.A.-22, *Water Tanks for Fire Protection*; specific sections of N.F.P.A.-13, *Installation of Sprinkler Systems*; and the N.F.P.A. Handbook. *This course meets for five consecutive weeks and is 10 hours in duration.*

CIV 5238 Automatic Standpipe/Sprinkler Systems (1.0 CEUs)

Survey of the design concepts associated with the layout of automatic sprinkler systems and standpipe systems using the latest edition of N.F.P.A.-13, *Installation of Sprinkler System*, and N.F.P.A.-14, *Installation of Standpipe and Hose Systems*. *This course meets for five consecutive weeks and is 10 hours in duration.*

CIV 5239 Hydraulic Calculations—Automatic Sprinkler Systems (1.0 CEUs)

Surveys the requirements and procedures associated with performing hydraulic calculations for automatic sprinkler systems as covered in N.F.P.A.-13, *Installation of Sprinkler System*, including hand and computerized calculations. Helps provide an understanding of the requirements associated with other N.F.P.A. sprinkler system and storage protection standards along with the applications of specially listed sprinkler heads such as residential, extended coverage, ELO, ESFR, etc. *This course meets for five consecutive weeks and is 10 hours in duration.*

CIV 5240 Effective Construction Cost Control (2.2 CEUs)

Develops effective cost control procedures for construction and renovation projects. Geared for project managers, company owners, estimators, and accounting staff, topics include preparing budgets, schedule of values, change orders, requisitions, as well as labor cost control and tracking. Reviews typical AIA forms and paperwork used in the industry today. Special emphasis is placed on profit maximization through effective and proper documentation, paperwork, and cost control management.

CIV 5243 Fire Protection Laws, Regulations, and Standards (1.0 CEUs)

Covers the applicable uses and relationships of the laws, regulations, and standards as used in building construction fire protection systems. Reviews applicable sections of the Massachusetts Building Code (6th Edition), as they relate to the building code and permitting process relative to fire protection sections. The sprinkler and fire alarm contractors' licensing responsibilities and the "PE" professional responsibilities as described by the Massachusetts Building Code and CMR-250 relative to specifications, bid documents and shop drawings, and fire department approval process will also be reviewed. Includes procedures for filing appeals and code change proposals. *This course meets for five consecutive weeks and is 10 hours in duration.*

CIV 5244 Fire Pump Design (1.0 CEUs)

Covers the design and engineering requirements associated with the selection and sizing of electrical motor and diesel driven fire and jockey pumps. Reviews types and styles of controllers and their applicable use as well as piping arrangements and layout, power wiring requirements and methods as described in N.F.P.A.-20, *Centrifugal Fire Pump*; and related sections of N.F.P.A.-70, *Electrical Code*. Requirements for acceptance testing will also be reviewed. *This course meets for five consecutive weeks and is 10 hours in duration.*

CIV 5245 Construction Project Management 1 (2.2 CEUs)

Initiates a project management approach to planning, scheduling, and controlling a project through a case study method of analysis. Participants will understand new project management techniques,

organization principles, and group synergism. Prepares the participant for Construction Project Management 2 (CIV 5246).

CIV 5246 Construction Project Management 2 (2.2 CEUs)

Introduces successful construction project management from project planning and design through project award, buyout, implementation, on-site monitoring and control, completion, and start-up. Project management techniques are utilized to solve actual construction cases in a team-oriented environment. A step-by-step project management analysis of a typical medium-sized construction project's requirements is examined. Recommended for all those aspiring to a responsible position in project management. *Prerequisite: Construction Project Management 1 (CIV 5245).*

CIV 5247 Inspecting Mechanical Systems (1.0 CEUs)

Covers the aspects of inspecting plumbing, gas, domestic hot water, heat pumps, and air conditioning systems; includes an overview of electrical and heating inspection techniques. *This course meets for five consecutive weeks and is 10 hours in duration.*

CIV 5248 Report Writing for Home Inspectors (1.0 CEUs)

Gives participants the materials necessary to write home inspection reports. Ways to avoid inspection litigation through the use of a variety of documents including home inspection contracts will also be covered. *This course meets for five consecutive weeks and is 10 hours in duration.*

CIV 5249 Building Codes for Home Inspectors (1.0 CEUs)

Enhances the inspector's knowledge and understanding of state building codes as they relate to a home inspection. A full review of relevant code information will be covered for home inspection participants. *This course meets for five consecutive weeks and is 10 hours in duration.*

CIV 5250 Home Inspection Field Trips (1.0 CEUs)

Participants will be taken to inspection sites by a qualified home inspector. Instruction will consist of hands-on inspections of exteriors, basements, attics,

and living areas. This course will demonstrate actual procedures for inspecting residential properties. *This course meets for five consecutive weeks and is 10 hours in duration.*

CIV 5251 Inspecting Commercial Real Estate (1.0 CEUs)

Learn a variety of techniques and inspection procedures pertinent to inspecting commercial real estate. Participants can expect to visit at least one commercial inspection site. *This course meets for five consecutive weeks and is 10 hours in duration.*

CIV 5255 Managing Fire Prevention and Building Codes (2.2 CEUs)

Focuses on code administration and ways in which code officials, engineers, and architects make judgments on code issues. Students learn the foundation of fire prevention and building codes with emphasis on structure, authority and responsibility under the code, and a basic understanding of the interaction of fire in buildings. The fire prevention and building codes sections deal with the specific laws and regulations pertaining to ownership of property, engineering and architectural services, and the advent and legislation of the fire prevention and building codes. Provides techniques to organize the analytical process and compare alternatives for the major factors that influence fire safety within a building or for fire suppression system specifications. Narratives, decision making, and knowledge of legal aspects of the approval process will be discussed and applied to case studies.

CIV 5271 Special Protection and Extinguishing Systems—Principles and Design (2.2 CEUs)

Surveys the full range of special extinguishing systems principles, system selection and hazard evaluation, and system design concepts and requirements. Topics include carbon dioxide systems, halogenated agent systems, dry and wet chemical systems, foam systems, special water spray systems; explosion venting and suppression systems. Installation and design parameters emphasize the use of N.F.P.A. standards and insurance company requirements. Knowledge of the physical sciences and the chemistry and physics of fire is highly recommended.

CIV 5280 Unit Price Estimating (2.2 CEUs)

Designed as a follow-up to *Quantity Takeoff for Estimating* (CIV 5281) for the participant pursuing a career as a professional estimator. Covers the analysis of the unit price estimate for construction projects and explains how the unit price is developed including materials, labor, and equipment. Adjustments for waste and productivity are also discussed. Learn to interpret the general conditions of the Contract along with supplementary general conditions. Other topics are the use of historical costs for estimating, published sources of cost data, computer-assisted estimating, bidding strategies, bonds, and profit determination. *Prerequisites: Construction Blueprint Reading for Estimators (CIV 5230) and Architectural Technology and Building Materials (CIV 5111).*

CIV 5281 Quantity Takeoff for Estimating (2.2 CEUs)

Introduces the principles of conceptual cost estimating; explores the procedures in developing a reliable estimate from a minimum of bidding documents and information. Topics are square foot and systems estimates, criteria for bidding in conjunction with building codes, working with architect/engineer, evaluating major systems and components for specialist and client requirements, developing an analysis of historical cost data, and determining degree of accuracy of the estimate. A strong fluency in the construction process is recommended.

CIV 5307 Introduction to Fire Protection Systems (2.2 CEUs)

Introduces the fire protection and safety industry: chemistry and physics of a fire, building construction considerations, smoke and heat detection systems, fire suppression systems and extinguishing agents (CO₂, Halon 1301, sprinkler), fire extinguishers, and means of egress. Course materials cover applicable state building codes and N.F.P.A. standards.

CIV 5311 Applications of Fire Alarm Systems (2.2 CEUs)

For those technicians pursuing Level 3 and/or Level 4 NICET Certification and for engineers responsible for fire detection/alarm systems design. An understanding of fire phenomena including detection, detector applications,

and prescriptive code-based fire alarm systems layout. Other topics include construction effects on detector spacing, off premises connections, notification appliances placement and audibility, and new technology applications. Uses N.F.P.A. Standards to solve design problems. Design reliability into fire alarm systems through proper detector applications and control panel configurations and evaluate existing fire alarm systems designs. *Prerequisite: Level 2 NICET or equivalent coursework/field experience, or Fundamentals of Fire Alarm Systems (CIV 5321).*

CIV 5314 Advanced Topics in Cost Estimating (2.2 CEUs)

Introduces the principles of conceptual cost estimating; explores the procedures in developing a reliable estimate from a minimum of bidding documents and information. Includes square foot and systems estimates, criteria for bidding in conjunction with building codes, working with architect/engineer, evaluating major systems and components for specialist and client requirements, developing an analysis of historical cost data, and determining degree of accuracy of the estimate. A strong fluency in the construction process is recommended.

CIV 5321 Fundamentals of Fire Alarm Systems (2.2 CEUs)

Designed for installing contractors preparing for the Massachusetts electrical license C and D exams, fire inspectors, building officials, electricians, and building maintenance technicians. Introduces fire principles, power supply requirements, detector and notification appliance types, wiring methods, installation techniques and testing procedures of fire alarm systems. Examines the fundamentals of automatic and manual fire alarm systems, the building code and N.F.P.A. standards. The proper application of system components and types of systems covered by N.F.P.A. 72, National Fire Alarm code, will also be presented. Learn to install and test fire alarm systems and how they interface with other fire protection systems.

CIV 5323 How to Organize a Home Inspection Business (One-Day Seminar) (1.0 CEUs)

Details the skills required to organize and operate a home inspection business.

Topics include qualifications and training; ethics; standards and professional organizations; budgeting; fee structuring; cash flow and fee collection; staff and administrative issues; records and recordkeeping; marketing and promotion; developing new business leads; insurance and liability considerations. Note: may not be applied to the Real Estate Inspections Certificate.

CIV 5332 Construction Management: Organizing and Managing a Construction Business (2.2 CEUs)

Designed for professionals who want to strengthen or start a construction business. Topics include start-up, managing, owner responsibilities, costs, company structures, lines of credit, financial performers, cost accounting, insurance, bonding, time management, hiring employees, performance evaluations, training, return on investment, and sales and marketing.

CIV 5340 Energy Conservation and Demand Side Management (4.4 CEUs)

Designed for facilities managers, energy conservation specialists, and other demand-side managers responsible for the management and procurement of energy. Includes energy auditing and accounting procedures, electric and gas load management techniques, and an extensive review of proven conservation measures that can reduce water, gas, oil, steam, and electricity use. Also, tips on selling your efficiency program to upper management, obtaining the most from utility rebate programs and mechanisms for obtaining alternative financing.

CIV 5370 Real Estate Environmental Inspections—Phase 1 (1.0 CEUs)

Reviews the occupational health and safety hazards associated with real estate inspections. Recognition of hazards, general toxicology of health hazards, personal protective equipment, and safe work practices. A discussion of asbestos, lead, radon, etc., and other property owner topics. *This course meets for five consecutive weeks and is 10 hours in duration.*

CIV 5371 Efficient Design and Operating Strategies for Building Designers and Managers (2.2 CEUs)

Discusses all major building systems including electric service and distribution, lighting, generators, vertical transporta-

tion (elevators and escalators), boilers, chillers, fans and pumps, automatic temperature controls and plumbing systems. Building siting and orientation, mass, wall design and improvements that are economically feasible for existing systems also included. While not a design course, the material covers rules of thumb to be used in the schematic design phase and will discuss life cycle costing and payback concepts. Intended for architects, engineers, facility managers and construction managers.

CIV 5373 Fire Protection Systems—Testing and Maintenance (2.2 CEUs)

Learn the basic routines for general fire alarm and sprinkler systems, as well as detailed explanations of the many types of special systems. Explores the various types of fire alarm systems, such as analog, conventional, and multiplex, and the various types of sprinkler systems, such as deluge, pre-action, and antifreeze. N.F.P.A. standards 25 and 72 will be used in this course.

ME 5031 Energy Management Systems (2.2 CEUs)

For facilities managers, energy conservation specialists, and other demand side management professionals responsible for energy and facility cost of operations. Topics include energy management systems (EMS), direct digital control, lighting control, facilities management program applications and strategies to reduce energy consumption, e.g., gas, oil, electricity, and steam. Also, an overview of estimating EMS savings.

ME 5100 Direct Digital Controls and Energy Management Systems (3.0 CEUs)

Examines state-of-the-art HVAC computerized controls. Emphasis is on available system configurations, applications, feasibility determination and on avoiding common system problems. Topics include automatic controls, energy management systems, and data communications.

ME 5103 Introduction to HVAC Systems Design 1 (3.4 CEUs)

Fundamentals of the design and installation of heating, ventilation and air-conditioning (HVAC) systems for personnel currently or potentially involved in the HVAC field. Topics include basic calculation of heating and cooling loads, warm air-duct heating systems design, commercial air-conditioning systems design, air

handling and duct systems design, and techniques for estimating labor and material for HVAC jobs. Relevant aspects of the Massachusetts State Building Code, Article 31, are included. Course provides background for more advanced courses in HVAC systems.

ME 5168 Fundamentals of Engineering (FE) License Examination Preparation (2.5 CEUs)

This 12-session/24 hour course is offered twice annually, in January and July. It assists in preparing for the Fundamentals of Engineering (FE) License Examination. A thorough review of engineering fundamentals is provided in addition to the important concepts common to all engineering specialties. Sample problems are reviewed in class. The course concludes two weeks prior to the date of the examination. *Please call 781.320.8026 to request an FE/PE brochure.*

ME 5182 Mechanical Cost Estimating and Bidding (2.5 CEUs)

Introduces mechanical cost estimating from receipt of plans and specifications to taking off quantities and estimating materials and labor. Specific topics include subcontractor pricing, interpretation of contract documents, profit determination, overhead factors, adjustments, claims, optimizations, and bidding strategy. Specifically geared for HVAC trades plus subtrades.

ME 5206 Testing, Adjusting, and Balancing HVAC Systems/Air and Water (2.5 CEUs)

There are an increasingly large number of systems installed without proper "tune up". Topics include how to estimate these jobs, instruments used, fan systems involved, air distribution devices; how to test, adjust and balance the various types of HVAC systems. Includes three weeks of on-site field practicum. *HVAC Temperature Controls and Systems Design* (ME 5301) is recommended.

ME 5208 Heating Systems Inspections (2.5 CEUs)

Designed to familiarize the inspector with every type of heating system. Emphasizes the identification of a system or component, the analysis of its operation to reveal any defects, and the reporting of the findings to the client. Covers oil, gas, and electric heating systems including heat pumps. Other topics are the heating of

domestic hot water by oil, gas and electric, including tankless water heaters. Reporting and applicable building, gas and oil burner codes are emphasized. Class discussion will utilize a specially compiled textbook and slides taken during actual home inspections. Includes a "hands-on" Saturday morning field trip to a heating school laboratory that displays more than twenty working heating systems.

ME 5255 Troubleshooting HVAC Mechanical Systems (0.8 CEUs) (One-Day Seminar)

Designed to help engineering professionals, facilities managers, plant engineers, building owners, and building professionals who have no background in HVAC systems identify HVAC problems and communicate the problem to the appropriate responsible party. Covers basic HVAC systems, heating/cooling load calculation, distribution systems, ductwork, piping, equipment sizing, start-up techniques, operating manuals, maintenance manuals, drawings, commissioning the system, testing, adjusting and balancing, evaluation of temperature controls, system costs, state, federal and local regulations, and what to do if the system still does not operate properly.

ME 5270 HVAC and Indoor Air Quality (One-Day Seminar) (.8 CEUs)

Designed to help engineering professionals, facilities managers, plant engineers, building owners, HVAC technicians, and maintenance personnel identify indoor air quality problems and communicate the problem to the appropriate responsible party. Overview of I.A.Q. Sick Building Syndrome (SBS), introduction to I.A.Q. documentation/compliance, and how to reduce productivity loss through the design review process. Problem-solving approaches for the I.A.Q. needs in buildings will be discussed, plus interpretation of carbon dioxide measurements and the legal aspects of I.A.Q.

ME 5282 HVAC: Indoor Air Quality (2.2 CEUs)

Designed for engineers, facilities managers, builders, brokers, inspectors, contractors, and maintenance personnel. Provides a comprehensive coverage of the history and sources of contamination in buildings and how to improve the quality of indoor air. Discussions on environmental issues concerning indoor air qual-

ity, ASHRAE standards, EPA standards, and other state and federal regulations. Includes an overview of HVAC systems in relation to indoor air quality and emphasizes methods to mitigate indoor air contaminants utilizing HVAC systems.

ME 5301 HVAC Temperature Controls and Systems Design (3.0 CEUs)

Examines the control industry through fundamentals of electric, pneumatic and electronic controls. Current practices relating to the application and design of residential and commercial systems (electric, gas and oil), cooling controls, heat pump, commercial and solar controls also presented. *HVAC Systems 2* (ME 5304) is recommended.

ME 5304 HVAC Systems Design 2 (2.5 CEUs)

Application and design of HVAC systems on psychrometric charts, correlating the calculations and selection of equipment with psychrometrics. Focuses on air distribution and duct design, selection of HVAC equipment, fans and fan laws; design of refrigerant piping systems and pump application. Case studies illustrate some of the field problems with HVAC systems. *Introduction to HVAC Systems Design 1* (ME 5103) is recommended.

ME 5305 HVAC Project (2.5 CEUs)

Work collectively on an HVAC design project that considers all applicable HVAC design issues such as temperature controls, testing, adjusting and balancing, and mechanical estimating. Participants have an opportunity to work one-to-one with the instructor. Enrollment is limited to eight. *Prerequisites: ME 5103; ME 5304; ME 5301; ME 5206; and ME 5182.*

ME 5307 Intelligent Building Systems (2.5 CEUs)

Introduces and examines the "intelligent" building. Topics surveyed include the integrated building automation system, integrated energy management, fire management, security management, HVAC lighting, and other design trends in intelligent buildings; electrical wire management, use of digital telephone techniques for building automation communications, and office furniture. Case studies review intelligent buildings and the intelligent healthcare facility. A field trip is planned.

ME 5350 Fundamentals of Steam & Hydronic Systems Design and Application (2.2 CEUs)

An in-depth look into the world of hydronic heating and low pressure steam heating. Specifically designed for maintenance personnel, HVAC contractors and installers, and anyone who wants to learn more about the operation of hot water and steam systems. The hydronic portion of this course describes the proper operation, location and selection of various components found in all hydronic systems. The steam portion covers how these low pressure systems were designed to operate. Description of the components found in one-pipe and two-pipe steam systems are detailed.

ENVIRONMENTAL, HEALTH AND SAFETY

781.320.8026

www.neu.edu/cont-ed/env

ENV 5210 Environmental Compliance Management Overview (2.2 CEUs)

Introduces concepts and principles of environmental compliance management. Presents an overview of the interaction among the various federal, state, and local regulations, such as OSHA, RCRA, SARA, CERCLA, TSCA, CAA, CWA, EPCRA, and DOT. Site audits, pollution prevention, and emergency response management as well as compliance management strategy concepts in industry along with hazardous waste treatment technologies, and special waste handling are also discussed.

ENV 5215 Pollution Prevention (2.2 CEUs)

Covers the principles and techniques used in waste minimization. Topics reviewed include minimization strategies, inventory controls, recycling, waste reduction, and employee training. Covers relevant methodology and regulations and requires project and presentation.

ENV 5216 Environmental Site Evaluations (2.2 CEUs)

Describes a Phase 1 environmental site evaluation, the tools and techniques used to gather the field data and conduct the evaluation, and why certain tools are used on one job and not on another. Field activity is included, which involves participation in actual site evaluation activi-

ties. Upon completion of the course, the participant will be able to conduct a Phase I environmental site evaluation in accordance with the new MCP.

ENV 5230 Hazardous Waste Law (2.2 CEUs)

Concentrates on governmental regulation of waste materials deemed hazardous. Emphasizes state and federal hazardous waste law, including M.G.L.-C.21C, M.G.L.-C.21E, CERCLA, and RCRA. Significant in-class participation expected.

ENV 5232 Chemistry for Hazardous Waste Site Managers (2.2 CEUs)

Explores the source and interaction of hazardous materials with the environment. Topics include nomenclature of organic compounds, proper sample collection and field testing techniques, sample preservation and chain-of-custody records, selection of analytical parameters, laboratory methods, and data validation procedures.

ENV 5234 Applied Geological Principles (2.2 CEUs)

Provides a working knowledge of how New England soils, rock, and water interact, how to predict waste fate based on subsurface geology, and how to assess geologic data. Topics include subsurface evaluation techniques, principles of groundwater flow in soils and rock, rock types and how they act, the interaction between wastes and earth elements, and clean up techniques applicable to rock, soil, and groundwater.

ENV 5240 Site Remediation Principles and Technologies (2.2 CEUs)

An analytical course intended for environmental managers and engineers interested in furthering their knowledge of remediation technologies and the RI/FS process. Incorporates the analysis frameworks of the Massachusetts Contingency Plan. Tracks the RI/FS process; defines response objectives; matches RI data needs with remedial technology requirements; and screens and analyzes remedial technologies. Reviews specific technologies—selection criteria; design considerations; costs; and implementation issues. Covers frequently selected remediation technologies—stabilization/solidification; groundwater pump and treat; soil washing; in-situ vacuum extraction; bioremediation; thermal treatment options; and other in-situ and ex-situ options. *Prerequisite: A solid background in soil and groundwater*

investigations. A suitable background can be provided by Subsurface Exploration Techniques (ENV 5266) and/or Applied Groundwater Hydrology (ENV 5632).

ENV 5247 Understanding ISO 14000: Environmental Management Standards (2.2 CEUs)

Presents the concepts, goals and principles of Environmental Management Standards as designed by International Standards Organization, an International Standard Federation formed by the EC countries to promote management standards for international manufacturing, trade and communications. Corporations trading with European corporations may need to meet these standards. Designed for managers who develop and maintain environmental management systems. Focus is on developing environmental policy, designing environmental management systems, evaluating performance, and environmental management system auditing. Also covers environmental product evaluation, including life cycle assessment, environmental labeling and environmental aspects in product standards.

ENV 5250 Hazardous Waste Management Under RCRA (2.2 CEUs)

Provides a knowledge of federal and Massachusetts regulations pertaining to the generation, transportation, storage, and disposal of hazardous waste. Topics include defining a hazardous waste, accumulation, labeling, manifests, and land disposal restriction form preparation, DOT regulations, auditing, recordkeeping, preparing for agency inspections, training plans, and contingency plans may include a visit to a TSDF.

ENV 5266 Subsurface Exploration Techniques (2.2 CEUs)

Provides specific knowledge regarding the state-of-the-art techniques available to investigate subsurface soil, bedrock, and groundwater conditions. Topics include geologic map interpretation, soil gas surveys, geophysical techniques, exploratory test pits, soil and rock classification systems; exploratory test borings, in-situ permeability and pump test, and monitoring well installations. Includes a live drilling demonstration. The course focuses on the Massachusetts D.E.P. protocols as established in WSC-310-91 (Standard References for Monitoring Wells).

ENV 5350 Principles and Practice (PE) License Exam Prep in Environmental Engineering (3.2 CEUs)

This 11-session/ 33 hour course is offered twice annually, in January and July. Provides preparation for the Principles and Practice (PE) License Examination in environmental engineering or for the exam in civil engineering with an environmental focus. Reviews environmental engineering fundamentals and the advanced topics common to all environmental engineers. Sample problems are reviewed in class with related handouts. The program concludes prior to the date of the examination. Please call 781.320.8026 for more information on the Professional Engineering Preparatory Program.

ENV 5410 Introduction to Clean Air Issues (2.2 CEUs)

Introduces air regulations and policy and strategic applications for industry, regulatory staff, consultants and environmental interest groups. Considers significant regulatory implications of existing, modified and new products, and processes, as well as how careful planning can position the organization for minimum regulatory requirements, healthier workers, and a better bottom line. Emission inventories, Clean Air Act Amendments of 1990, operating permits, hazardous air pollutants (HAPs), emission control technologies, CFCs, and ozone-depleting substances will be discussed.

ENV 5411 Introduction to Clean Water Issues (2.2 CEUs)

Water regulations can play an important role in the overall environmental management of a facility. Provides a working knowledge of state, federal, and local regulations pertaining to the Clean Water Act. Topics including water quality criteria, NPDES, pretreatment, local limits, and stormwater.

ENV 5426 Underground Storage Tank Management (2.2 CEUs)

An overview of underground storage tank (UST) leak prevention, detection, and corrective action. Includes leak detection methods; federal and state regulations; 40 CFR 280-281, 310 CMR 9, 40 (MCP), 502 CMR 3, 503 CMR 2 (21J); tank closure and removal; site assessment; soil and groundwater remediation; UST management and liability, insurance, trust funds, and non compliance issues. Gen-

eral information is provided on how tanks leak, how corrosion works, basic toxicology, and health and safety issues associated with handling.

ENV 5445 Chemical and Biological Safety in the Laboratory (2.2 CEUs)

Addresses specific health and safety issues in the laboratory environment and the potential risk to workers. The areas may include a small microbiology lab, quality control, research and development, process development, or a pilot plant gearing up for production of a major product. All public and private industries need to address the safety issues facing their employees and management. Employers and employees alike are required to comply with various OSHA requirements as well as state and local guidelines. Some of the topics include bloodborne pathogens, occupational exposure to chemical hazards, radiation protection, laboratory ergonomics, hazardous waste operations.

ENV 5462 Hazard Communication: Writing and Implementing the Plan (2.2 CEUs)

Implement or revise your company's hazard communication program. Develop a written program, learn how to read and understand MSDSs and develop a training program. Designed for those who may be responsible for hazard communication at their workplace. The intent of this course is to bring companies into compliance with hazard communication and to transform mediocre hazard communication programs into outstanding programs.

ENV 5464 Hazard Recognition and Loss Control Methods (2.2 CEUs)

Addresses the principles of hazard control, beginning with the recognition and understanding of specific job hazards, through the planning and establishment of a comprehensive safety plan. Learn to identify the contributing causes and elements of hazardous conditions in order to design controls and strategies that will successfully reduce and eliminate accidents and injuries. Additional topics include control of the worker's performance, of tools and machines, and of the working environment.

ENV 5467 Confined Space Entry (2.2 CEUs)

Reviews safety planning and control measures necessary for safe entry and work in confined spaces. Topics include regula-

tory mandates, lockout/tagout, proper training, personal protective equipment needs, air monitoring requirements, and procedures for effective rescue operations. Participants will develop a confined space entry and rescue operation plan. A hands-on portion of the program will be conducted at an operating facility.

ENV 5468 Applied Risk Characterization Under the Massachusetts Contingency Plan (MCP) (2.2 CEUs)

Presents the fundamentals of risk characterization, including hazard identification, dose-response, and exposure assessment. These basic principles will be applied specifically to the requirements outlined in the Massachusetts Contingency Plan (MCP), subpart I, by using examples and case studies. Participants should have a working knowledge of chemistry and biology.

ENV 5624 Occupational Health and Safety Overview (2.2 CEUs)

An overview of OSHA health and safety standards, such as hazard communication, respiratory protection, flammable storage, electrical safety, and noise. Learn the practical skills needed to recognize, evaluate, and control some commonly encountered health and safety problems seen in industrial settings. Designed for environmental safety and health officers, engineers, facilities managers, personnel managers, health agents, occupational health nurses, and anyone interested in gaining basic information needed to comply with OSHA standards to achieve a safer work environment.

ENV 5637 Understanding the Massachusetts Contingency Plan (MCP) (2.2 CEUs)

An overview of the Massachusetts Contingency Plan (MCP), the regulations that govern the assessment and cleanup of releases of oil and hazardous material in the environment. Covers the intent and application of key aspects of the MCP and includes the use of practical case studies and field applications.

ENV 5640 Fundamentals of Construction Safety (2.2 CEUs)

Explores employer and employee rights and responsibilities as they relate to construction safety and federal and state safety regulations. Examines the importance of establishing and implementing a safety

plan to address hazard recognition; selection of appropriate safety measures to minimize likelihood of injury, such as work practices and engineering controls; training; supervision; and recordkeeping. Gain an understanding of how an employer achieves and maintains compliance and a safe working environment. Fulfills the requirements of the OSHA 10-hour construction safety and health outreach program, and participants who successfully complete the course will receive an OSHA course completion wallet card.

ENV 5641 Wetlands Regulations (2.2 CEUs)

Intensive ten-week course examining the Massachusetts Wetlands Regulations, including the latest changes resulting from the Rivers Bill legislation. Using case studies, learn how to apply the Wetlands Regulations in real-life situations. Interpreting nebulous sections of the regulations and understanding the theory behind the regulations will be highlighted.

ENV 5649 Industrial Safety (2.2 CEUs)

Expands on the safety topics presented in the Occupational Health and Safety Overview (ENV 5624) course. Topics are OSHA general industry standards; includes establishing and managing a plant safety program, safety and health training, recordkeeping, plant design and layout for safety, job safety analysis, accident investigation and plant inspections and audits. *Prerequisite: Occupational Health and Safety Overview (ENV 5624)*

ENV 5650 Fundamentals of Industrial Hygiene (2.2 CEUs)

Introduces the basic principles of industrial hygiene including the fundamentals of anticipation, recognition, evaluation and control of health hazards in the workplace, with an emphasis on air contaminants and noise. Basic toxicological principles will be discussed as they relate to industrial hygiene. Recommended guidelines from the ACGIH and applicable OSHA regulatory requirements will also be reviewed. *Prerequisite: Occupational Health and Safety Overview (ENV 5624)*.

ENV 5652 Certified Hazardous Materials Manager (CHMM) Review Course (3.2 CEUs)

A 32-hour review course to assist you in preparing for the Certified Hazardous Materials Manager examination. A two-

day review course and eight Thursday evening meetings in a study group format. Reviews the fundamentals of hazardous materials management topics. Includes chemistry of hazardous materials, toxicology, radiation, remediation, federal regulatory requirements for hazardous materials, and management issues for the hazardous materials manager. To receive an application to take the CHMM exam, call the Institute of Hazardous Material Management at 301.984.8969.

ENV 5669 Ergonomics (2.2 CEUs)

Designed for health and safety officers, occupational nurses, and human resource professionals, covers the fundamentals of ergonomics in the work environment: how ergonomic principles are applied through design, evaluation, assessment and control to reduce the incidence of repetitive motion and cumulative trauma disorders, and the incidence of worker compensation claims.

ENV 5670 Environmental, Health and Safety Auditing (2.2 CEUs)

Reviews the fundamentals and techniques of environmental, health and safety auditing. Topics include audit program design, techniques of conducting an audit, mock audits, ways to report audit findings, and the future of auditing.

ENGLISH AS A SECOND LANGUAGE

617.373.2423 • TTY 373.2825
www.neu.edu/uc

ESL 5011 Business Reading for ESL Students (0 CEUs)

Designed for international students at the intermediate/advanced level who want to improve their reading and vocabulary skills through a business context. Students will read and discuss international business cases that cover such topics as negotiations, contracts, time management, and marketing. In addition, students will do short presentations based on outside business reading.

FINANCE

617.373.7972 • TTY 373.2825
www.neu.edu/cont-ed/FSI.html

FI 5300 CFA Level 1 Review (4.0 CEU)

The purpose of this CFA Review course for the Level 1 exam is to help CFA candidates attack the volume of difficult material contained in the Body of Knowledge required by AIMR and break it down into more manageable modules. In a classroom format of lecture, discussion, and practical application, participants learn how to calculate and apply the necessary financial concepts.

FI 5701 CFP 1 Financial Planning Process and Insurance (3.0 CEUs)

This course begins with a presentation of the financial planning process and introduces the legal, ethical, and regulatory issues affecting financial planners. Time value of money concepts are addressed, as are the principles of risk management and insurance. Analysis of life insurance needs and methods of determining the type and amount of insurance best suited to the client's situation are also examined, incorporating a discussion of property and liability insurance. Finally, medical and disability insurance, as well as long-term care policies are covered.

FI 5702 CFP 2 Investment Planning (3.0 CEUs)

The wide variety of investment vehicles that can be included in a client's personal investment portfolio, including stocks and bonds, mutual funds, insurance-based investments, futures, options, foreign investments, real estate, and tangible assets are discussed. Client assessment, tax considerations, economic factors, risk and return analysis, valuation methods, asset allocation techniques, and portfolio performance evaluation methods are also considered. Concepts and techniques are integrated in the final section, which presents the portfolio construction and management process.

FI 5703 CFP 3 Income Tax Planning (3.0 CEUs)

Emphasizes the fundamentals of individual income taxation, the tax implications of various types of businesses, planning for the acquisition and disposition of property, tax-advantage investments, and tax planning for the family. More technical topics are also discussed in the course,

including employee compensation issues and planning, alternative minimum tax, self-employment tax, and tax traps.

FI 5704 CFP 4 Retirement Planning and Employee Benefits (3.0 CEUs)

This course begins with a discussion of the personal tax-deferred retirement programs available and includes a framework for use in calculating the annual savings needed to reach retirement income goals. Key features of qualified retirement plan design, with emphasis on the advantages and disadvantages of specific types of qualified plans for the owners of small to medium-sized businesses are discussed. Social Security, Medicare, group life, health, and disability insurance; non-qualified deferred compensation; and other commonly provided employee benefits are examined.

FI 5705 CFP 5 Estate Planning (3.0 CEUs)

The final course of the CFP Program introduces the student to the process applied to the development of an estate plan. The fundamentals of federal estate and gift taxation are emphasized, as well as specific exclusion and valuation techniques that reduce the size of the gross estate. Trusts, property ownership forms, and will substitutes are also introduced. Specific assignments address life insurance, lifetime gifting and coordination of the unified credit with the marital deduction; charitable, intrafamily, and business transfers; and postmortem planning techniques that play an important part in estate planning.

FI 5711 CFP Comprehensive Review (8.0 CEUs)

Once students have completed and passed all five courses and examinations, they will be eligible to take the CFP Board of Standards' two-day comprehensive exam. This 88-hour course reviews the 106 topics comprising the body of knowledge required for the CFP certification through interactive lectures, case studies, sample test questions, exam strategies, and a mock examination.

HUMAN RESOURCES MANAGEMENT

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HRM 5590 SHRM® Learning System (3.0 CEUs)

This course, using the SHRM® Learning System, consists of ten class sessions held once a week for three hours, is an excellent preparation for the PHR and SPHR exams. The topics covered include Management Practices; Selection and Placement; Training and Development; Employment and Labor Relations; Compensation and Benefits; Health Safety and Security; and A Guide to Smart Test Taking.

HRM 5591 Management Practices: The Strategic Management of Human Resources (2.5 CEUs)

Presents leading-edge developments and state-of-the-art thinking in human resources management. The course content includes HR's strategic role in the organization, redirecting organizations with values and ethical practices, organizational transformation, revolutionizing work, and technology tools. This course emphasizes the application of cutting-edge information with respect to organizational design and strategic staffing and also addresses the concepts of reinventing quality and strategic HR leadership.

HRM 5592 Employee Relations: Managing Employees in a Dynamic Work Environment (2.5 CEUs)

Designed for HR professionals who need to know and understand the signs of change in the workplace and the factors driving that change. Topics include the new workplace realities, differences between men and women in the workplace with regard to leadership and communication styles, handling employees who can't or won't work, diversity, resolving workplace disputes, management/worker relations and the mutual gains model, and reducing risk at work. The course also deals with work/life issues and conflicts and provides an opportunity to define your organization's position on such issues to determine strategies for response.

HISTORY

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HST 5603 Historical Exhibits and Museums (3 CEUs)

Studies approaches, techniques, and special problems in the presentation of history to the public through exhibits, films; and other audiovisual and written media.

HST 5610 Industrial Archeology (3 CEUs)

Introduces the history, practice, and place of industrial archeology. Plans examinations of techniques and processes used to unearth the industrial past. Field trips to local industrial sites.

HST 5612 Studies in Material Culture (3 CEUs)

Investigates strategies for examining material culture, including architecture, historic archeological remains, and the artifacts of domestic and work lives, as sources for historical study.

HST 5625 Media and History (3 CEUs)

Explores such topics as the advantages and drawbacks of specific media, the uses and abuses of media in research and teaching, and the construction of media. Requires each student to participate in a research project involving the creation and/or evaluation of historically valid films, slide tapes, and other materials.

HST 5824 Fieldwork in History 1 (3.0 CEUs)

Offers students the opportunity to get practical experience in historical agencies, including historical societies, archives, museums, exhibits, restorations, preservation projects, and the like. Requires students to work in the agency ten hours a week for one quarter under the direction of an agency supervisor and departmental advisor.

HST 5825 Fieldwork in History 2 (3.0 CEUs)

Gives students a second opportunity to acquire practical experience in a historical agency. Requires ten hours a week for one quarter under the direction of an agency supervisor and a departmental advisor.



INFORMATION TECHNOLOGY NETWORKING AND COMMUNICATIONS

781.320.8052

www.neu.edu/cont-ed/SOA

COM 5761 NT System Administration: Workstation (2.0 CEUs)

Learn how to set up and configure a Microsoft NT 4.0 Workstation. Covers topics such as Permissions and Security Controls; TCP/IP Configuration and Internetworking; Performance Tuning; Registry Management and Troubleshooting; RAS Client Installation and Usage; and other concepts covered in MS Exam 70-73. *Prerequisite: Microsoft Networking Essentials (COM 5811) or equivalent experience.*

COM 5762 NT System Administration: Server (2.0 CEUs)

Learn how to set up, configure, and administer a Microsoft NT 4.0 system. Covers topics such as installing and configuring an NT Server; TCP/IP Services for NT, IIS, RAS and printers; installing and managing Domains; migrating from NetWare server to NT; other concepts covered in MS Exam 70-67. *Prerequisites: Working knowledge of Windows 95, NT System Administration: Workstation (COM 5761), or equivalent experience.*

COM 5763 NT Enterprise Management (3.0 CEUs)

Intensive hands-on course in NT Management and troubleshooting provides an in-depth study of the critical issues involved in integrating Windows NT with an enterprise network. Covers topics such as network monitoring and optimization; protocol management and connectivity; batch processing and automation; directory services and groupware; NT integration with UNIX and NetWare; troubleshooting tools and techniques; other concepts presented in MS Exam 70-68. *Prerequisites: NT System Administration: Server (COM 5762) and NT System Administration: Workstation (COM 5761), or equivalent experience.*

COM 5767 SQL Server Administration (3.0 CEUs)

Covers the information needed to design, implement or support database design under MIS SQL server. Learn all neces-

sary SQL commands and design involved in managing an information server on an MIS SQL server platform. Presentations in both client and server utilities will be provided, along with tips on designing for performance and implementation problems.

COM 5768 Microsoft SNA Server (3.0 CEUs)

Gain the skills and knowledge to identify how Microsoft SNA server is used to meet the specific computing needs of an organization. Learn to plan, install, configure, and manage an SNA server. *Prerequisite: NT System Administration: Server (COM 5762) or equivalent experience.*

COM 5769 Microsoft Systems Management Server (3.0 CEUs)

Install, configure, administer, and troubleshoot Microsoft Systems Management Server. Course teaches how to use remote control functions to diagnose and solve common problems, manage shared applications, distribute software to client computers, collect hardware and software inventory, and implement multiple system management server sites. *Prerequisite: NT System Administration: Server (COM 5762) or equivalent experience.*

COM 5811 Microsoft Networking Essentials (2.0 CEUs)

Developed to assist in achieving Microsoft certification. Utilizes Microsoft's official self-paced training materials and the State-of-the-Art Program's PC training labs. Each participant is required to purchase a Microsoft Networking Essentials kit consisting of a textbook and CD-ROM and is encouraged to practice outside of class from Microsoft's Networking Essentials exam—the first in the series of Microsoft's certification exams. The goal of this course is to provide significant knowledge, understanding, and experience to help with the exam to become a Microsoft Certified Professional or Microsoft Certified Engineer. Although no education/training institution can guarantee you will pass the exam, Northeastern University's State-of-the-Art Program is the recognized leader for providing top-notch networking experts. In addition, this course qualifies as an elective for any of the Networking and Communications certificates.

COM 5828 Fundamentals of Data Communications for the Non-Technical (2.0 CEUs)

An overview of data communications, with an emphasis on concepts and applications of networks. Topics include an analysis of the evolution of networking; a description of current network applications, common terminology, and components; an analysis of the data communications industry and of future trends in networking. This course is intended for those with little or no data communications background who desire to become literate in data communications concepts. This course may be applied toward the Communications Systems Management Certificate ONLY.

COM 5830 Data Communications (2.0 CEUs)

Basic data communications components, terminology, and concepts along with industry trends are explained. Topics include data communications components, such as modems, routers, and packet switches; analog and digital transmission techniques and digital interfaces, such as RS232C and V.35; multiplexing techniques such as FDM, TDM, and STDM; circuit and packet switching techniques; LAN options, including Ethernet and Token Ring. This course is intended for those with a moderate technical background.

COM 5840 Data Transmission and Switching (2.0 CEUs)

Provides a detailed overview into the concepts and applications of selected issues. Topics include a comparison of modem and CSU/DSU technology; an analysis of interface signaling such as RS232 and V.35; an analysis of digital signaling and technology; a comparison of data link controls such as HDLC and SDLC; a comparison of statistical and time division multiplexing; a description of packet switching and X.25. This course assumes familiarity with the topics covered in Data Communications (COM 5830).

COM 5841 Remote Access Technologies (2.0 CEUs)

Reviews the recent trends in computing, including the migration from direct-connect mainframes to remote access client/server technologies, protocols, and techniques. An analysis of current and evolving access technologies: V.34 modems, 56

Kbps modems, ISDN, cable modems, 56 Kbps private lines and frame relay, xDSL, Direct Broadcast Satellite (DBS), etc. A review of current and planned wireless technologies is included. Corporate site connection, such as the public telephone network, private network connections, X.25 networks, frame relay networks, and the Internet are discussed. Finally, a lesson devoted to planning, designing, implementing, and supporting a corporate remote access program is included.

COM 5843 LANs, WANs, and Internetworking (2.0 CEUs)

Provides participants with the knowledge of an end user communications stack, and the LAN and WAN knowledge to carry application data end-to-end. Details TCP/IP applications, transport, networking, and packet structure, and creates a structure in which this stack and others are transmitted across LANs and WANs to be delivered to a LAN host. LAN topics include Ethernet and Token Ring operation, framing, and data encapsulation; FDDI campus backbone operation; definitions of Ethernet packet type, LSAP, and SNAP addresses; layer 2 transparent and source route bridge operation; layer 3 routing operation. WAN switching technologies topics include: X.25, frame, ATM, and routing vs switching. IP protocol stack details include TCP and IP headers; IP addressing; ARP, ICMP; sample applications; sample TCP session. This course assumes a familiarity with the material covered in Data Communications (COM 5830).

COM 5844 Planning for Network Evolution (2.0 CEUs)

Provides framework for the successful implementation of communications technology within a corporation. Analyzes the business, industry, and technical factors that impact implementation. Topics include construction of a structure for network planning and analysis; quantification of the impact of existing and emerging network applications; analysis of network chargeback alternatives and approaches; description of the current industry structure and trends; construction of a framework for vendor negotiations; description of the current network services and tariffs; analysis of the international service environment; identification of major network design issues; and analysis of the major issues with regards to LANs,

WANs, and internetworking. Participants in this course should have a broad technical background.

COM 5845 TCP/IP Architecture, Protocols, and Algorithms (2.0 CEUs)

This in-depth study of the TCP/IP Internet Protocol Suite compares the suite to the OSI reference model. Also describes other applications such as FTP, Telnet, TFTP, DNS, BootP, and DHCP. Goes in-depth on IP addressing and subnet masking, TCP operation, session initiation, sequencing, acknowledgment, and windowing. Illustrates supportive protocols such as ARP, INARP, ICMP. Discusses the next generation of IP (IPv6) and the transition methods. Encapsulation methods are discussed to carry IP over FR, and ATM, SLIP, and PPP. Distance vector and link state routing methods are compared, RIP and RIP-2 are detailed, as well as OSPF. SNMP structure, MIBs, object, attributes, and instances are discussed. This course assumes a familiarity with the material covered in LANs, WANs, and Internet-working (COM 5843).

COM 5846 Local Area Network Administration 1 (2.0 CEUs)

Basic administration, security, backup and recovery, and other fundamental tasks of LAN administration are introduced. Strategies are given for creating a stable, controlled, and supportable environment. Other topics include creating printing environments, change control, tape rotating, strategies for managing multiple sites, etc. *Prerequisite: Introduction to Local Area Networks (EE 5415) or equivalent on-the-job experience with permission of the instructor.*

COM 5848 Local Area Network Support 1 (2.0 CEUs)

Covers the basic issues in network support including finding and replacing faulty components, debugging and resolving software problems, and detecting and resolving capacity problems. How to reduce and isolate problems, create fault tolerant and fail safe environments and cope when the source of a problem is completely unknown. Other topics include common media problems and their resolution, the most likely failures in an environment, simple tests and tools to use in isolating faults, common software problems, and an introduction to the issues

introduced by wide area networking. *Prerequisite: Intensive Local Area Networks Lab (EE 5416) or equivalent on the job experience with permission of the instructor.*

COM 5872 Implementing Videoconferencing: Technology, Trends, and Standards (2.0 CEUs)

Presents an overview of the latest developments and technology trends for room and desktop videoconferencing systems. Compression and coding techniques used in videoconferencing are covered and details on the H.320, H.323, H.324, and T.120 family of standards for videoconferencing and data collaboration are provided. An overview of packet and circuit switched transmission techniques used to transport videoconferencing signals will be included as well as an overview of current videoconferencing equipment, vendors, and applications. *Preregistration is required. Course is limited in size.*

COM 5891 Internetworking with Bridges and Routers (2.0 CEUs)

Examines the specific concepts and technologies that are essential to understanding bridging and routing. Explores the differences between bridging and routing and their implementation. Explains the most prevalent bridging technologies: transparent bridging, the spanning tree algorithm, source routing, SRT, and SR-TB. Routing is explored through an overview of some of the more prevalent routing protocols, such as TCP/IP, IPX, and DECnet. *Preregistration is required. Course is limited in size.*

COM 5911 Wireless Communications (2.0 CEUs)

Covers the environment in which any wireless network must operate and its effect on design. The operation of the current cellular system and the contender for the second generation digital systems will be covered. New, emerging wireless services will be discussed as well as the possible uses and standards for employment on the new Personal Communications Services (PCS) frequencies. Discusses wireless local area networks (WLANs) and their place in your computer's data network. This is not an introductory communications course. Participants should have completed prior telecommunications/data communications courses or have equivalent experience.

COM 5912 TCP/IP Network Implementation (2.0 CEUs)

Addresses the design, implementation, and management of a TCP/IP network and provides an overview of the TCP/IP protocol and suite, primarily the issues relating to the configuration and administration of the IP network. Topics include planning the TCP/IP installation, addressing, basic system configurations, configuring routing, name service concepts, host table, configuring mail, on-going tasks, and Internet services. *Prerequisite: Familiarity with system and network management.*

COM 5916 Advanced Wireless Communications (2.0 CEUs)

Covers the technical detail of the operation of wireless communications systems with emphasis on the second and third generation digital systems currently being fielded or in development. Additional emphasis is placed on understanding the end-to-end operation and capabilities of these systems and their unique characteristics. *Prerequisite: Wireless Communications (COM 5911) or equivalent experience.*

EE 5401 Fundamentals of Telecommunications for the Non-Technical (2.0 CEUs)

Presents an overview of telecommunications with an emphasis on concepts and applications. Topics include descriptions of long distance services, local exchange services, analog and digital transmission, and industry trends; analysis of the components and uses of private networks; and analysis of PBX and Centrex services. Intended for those with little or no telecommunications background who desire to become literate in telecommunications concepts. This course may be applied toward the Communications Systems Management Certificate ONLY.

EE 5405 Principles of Telecommunications (2.0 CEUs)

Presents a technical overview of telecommunications and include a description of the structure of the network and the industry; an analysis of current services, tariffs and regulations; a description of the network traffic; and an analysis of transmission techniques, modulation and multiplexing techniques, and switching techniques. Intended for those with a moderately technical background.

EE 5410 Introduction to Signaling and Switching (2.0 CEUs)

Provides a detailed overview of the components and applications of signaling and switching. Topics include an analysis of subscriber trunk and common channel signaling; central office common systems; customer premise equipment; and network operations. Assumes familiarity with the topics covered in Principles of Telecommunications (EE 5405).

EE 5412 Transmission Systems (2.0 CEUs)

Provides a detailed overview of the components and applications of transmission systems. Topics include analog cable, microwave, satellite, cellular, and fiber optics; analog and digital transmission systems; data communications concepts such as LANs and packet switching; ISDN; and SONET. Assumes familiarity with the topics covered in Principles of Telecommunications (EE 5405).

EE 5415 Introduction to Local Area Networks (2.0 CEUs)

Addresses LAN technologies. Emphasizes LAN topologies, access methods, cabling, standards, network operating systems, and interconnect components. LAN technology topics include IEEE standards; network operating systems, NetWare; MAC address scheme; Ethernet II and IEEE802.3 framing; Fast Ethernet and Gigabit Ethernet; cabling: 10Base5, 2, T, F, 100BaseTx; CSMA/CD access method; Ethernet switching; Token Ring operation (IEEE802.5), framing, cabling, ring monitoring; broadband bus operation (IEEE802.4); FDDI operation (ANSI X3T9.5); and wireless LANs. LAN interconnect topics include repeaters; transparent, spanning tree bridges; source route bridges; routers and routing methods; gateways; and intelligent hubs. Assumes a familiarity with the material covered in Data Communications (COM 5830).

EE 5416 Intensive Local Area Networks Lab (2.0 CEUs)

Demonstrates the use of LAN technology (baseband and broadband) in a business environment via hands-on lab exercises. Emphasizes multivendor connectivity utilizing products from companies such as DEC, IBM, 3COM, Chipcom, and Wang. Broadband LAN labs demonstrate

the construction of a physical backbone network followed by the activation of data, video, and voice services (utilizing WangNet). Baseband LAN labs demonstrate the construction of an 802.3 Ethernet thinwire backbone (DEC) as well as the construction of 802.3 Ethernet fiber-optic backbone (Chipcom), and the construction of an 802.5 Token Ring backbone. The final lab exercise utilizes the broadband LAN to activate an 802.3 ethernet channel and a video channel simultaneously. All LAN labs utilize IBM PCs with LAN controller boards and Novell's NetWare. Material covered in five weeks, one session per week, four hours per session. *Prerequisite: Introduction to Local Area Networks (EE 5415). Preregistration is required. Course is limited in size.*

EE 5417 Advanced Local Area Network Technologies and Network Topologies (2.0 CEUs)

Provides detailed overview into the technologies and topologies of LAN switching, high-speed Internet-working, virtual switched networks, ATM networks, and switched routed networks. Topics include network models: IP, ATM; shared to switching topologies and architectures; LAN switching: Ethernet, ATM, routing; VLANs; ATM architecture: layers, cell format, virtual circuits, signaling; ATM PNNI: signaling, routing, peer groups, IISP; ATM traffic management: traffic descriptors, QoS, traffic contracts, ATM services and mechanisms; multiprotocol networks over ATM: RFC 1483, LANE, Classical IP, MARS; Switched routing: NHRP, MPOA, ASIC Gigabit Ethernet Routing; and QoS Networks: STM QoS, Ethernet QoS. Assumes familiarity with local area networking and the network communication stack.

EE 5420 Telecommunications Transmission Techniques (2.0 CEUs)

Introduces the current technology and industry practices in telecommunications networks. Surveys both old and new transmission systems. Techniques covered include analog local telephony, frequency division multiplexing, digital carrier systems and time division multiplex, analog and digital radio, satellite systems, and optical fiber. Concepts include network and system aspects of transmission, and voice and data

transmission in both digital and analog environments. Recommended background courses include either Principles of Telecommunications (EE 5405) or Data Communications (COM 5830).

EE 5425 Telecommunications Switching Systems (2.0 CEUs)

Offers new perspectives into the fundamental principles of digital switching technology to provide a basic understanding of various switching matrix topologies and their limitations. Design considerations for the various analog and digital terminations on a digital switching matrix are also reviewed. Course provides an in-depth understanding of digital switching concepts and systems. Topics include circuit switching fundamentals; switching systems controls/software; digital switching networks; analog termination/digital termination; business applications; Fast Packet, ATM, Photonic Switching. Intended for those whose work requires a clear understanding of the principles, techniques, and applications of digital switching. Principles of Telecommunications (EE 5405) and Introduction to Signaling and Switching (EE 5410) are suggested background courses.

EE 5456 Fiber-Optic Networking (2.0 CEUs)

Presents the basics of fiber-optic transmission and fiber-optic network components (optical fibers, cables, splicing, connectors, couplers, transmitters, and receivers) and the analysis of various fiber optic applications. local area networks (LANs), wide area networks (WANs), and telephony applications are discussed and analyzed. Provides participants with a basic understanding of the Fiber Distributed Data Interface (FDDI) and Synchronous Optical Network (SONET) standards.

EE 5459 Video Dialtone: Technology and Standards (2.0 CEUs)

Examines the many issues involved in the technology of video delivery. Technical, regulatory, and market considerations are covered, and an overview of several evolving video distribution systems is provided.

EE 5461 High Speed Access to the Internet (ADSL and Cable Modems) (2.0 CEUs)

Internet growth, ISPs, Internet exchanges

and connectivity, TCP/IP protocol, PPP protocol, IP addressing, RIP and OSPF routing, DNS, Internet applications (E-mail, file transfer, Telnet, SNMP, etc.) and doing business on the Internet. Focuses on Internet cost models, services, pricing and comparison to other data networks (LANs, WANs, VANs, and the PSTN for remote access); and security, authentication, encryption, billing, provisioning, etc. High speed Internet access—review of access capabilities including ISDN, cable modems, ADSL, DBS. Detailed analysis of ADSL services, technology, protocols, and current stage of implementation. Detailed analysis of cable modem services, technology, protocols and current stage of implementation. Comparison of cable modems and ADSL.

EE 5462 ISDN for Internet Access (2.0 CEUs)

Focuses on the key issues required to make practical use of ISDN for Internet access. Provides a background on ISDN's telephony heritage and how it impacts data users; summarizes key Internet protocol issues. Discusses real working configurations using PC adapter cards, external terminal adapters, and ISDN routers and their pitfalls. *Prerequisite: Users should have a working knowledge of basic telecommunications and data communications principles and techniques. (The introductory courses would suffice or equivalent experience.)*

EE 5465 Integrated Services Digital Networks (ISDN) (2.0 CEUs)

Provides a user-oriented introduction to ISDN. Additional emphasis on practical ways to use ISDN for carrying Internet traffic and LAN interconnection, and interworking between ISDN and non-ISDN services. Related services, such as Frame Relay and Asynchronous Transfer Mode (ATM) will also be introduced.

EE 5468 Frame Relay, Fast Packet, and ATM Networks (2.0 CEUs)

Compares routing and switching and then specifies the three switching approaches: circuit, packet, and cell switching. Also, an in-depth study of Frame Relay and ATM and the operation of the original switching protocol X.25 as the foundation for the others. Frame Relay topics include frame header structure; defining DLCI, FECN, BECN, DE; committed information rate and burst excess; local

and global addressing; RFC 1490 encapsulation method; control protocols: Annex_D, LMI, Annex_A.

ATM topics include UNI and NNI; VCC and VPC; QoS Specified, Unspecified, ABR; LANE; classical IP over ATM, and MPOA; physical layer for LAN Fiber, T1, T3, SONET; ATM header description and layers; adaptation methods and traffic classes; Q.2931 signaling and connection setup; SNMP ILMI; FUNI, DXI; and PNNI. Assumes a familiarity with the material covered in LANs, WANs, and Internetworking (COM 5843).

EE 5472 Introduction to ATM (2.0 CEUs)

Provides an overview of current and future ATM technologies. Topics include methods of incorporating ATM into existing LAN and WAN networks, the physical media used by ATM, the adaptation of layers, signaling methods, and traffic management. Emphasis is placed on recent and upcoming specifications implemented by ATM including LAN emulation, user-to-node interface, multiprotocol over ATM, and available bit rate.

EE 5473 Digital Signal Processing Concepts (2.0 CEUs)

Emphasizes how the various DSP techniques work in both software and hardware solutions; practical knowledge of the properties and behavior of DSP techniques through exercises/homework using the student edition of MATLAB. Topics include programming in MATLAB, sampling of continuous signals, overview of sampled signal properties, analog and digital filters and their software/hardware structures, sample-rate changing with interpolating and decimating filters, spectrum analysis and the FFT, signal modeling, and quantization effects. Applications to be considered can be in the areas of data modems, wireless communications, speech compression, data acquisition, feedback control, and other application areas as determined by student interests. *Prerequisite: Engineering and software experience. The use of MATLAB requires a Microsoft Windows-compatible personal computer or a Macintosh computer.*

TMG 5335 Telecommunications Law and Electronic Media Regulations (2.0 CEUs)

Focuses on laws and regulation affecting telephone, cable, Internet and other new technologies, and will include the following topics: The Telecommunications Act of 1966; The Communications Decency Act, and the First Amendment; Broadcasting and Cable Television Regulation; Intellectual Property Rights on the Internet; Local Exchange and Long Distance Telephone Competition; Regulation of the Internet and New Technologies; FCC Regulation-Interconnection, Universal Service & Access Charge Reform Orders; and Government Antitrust Enforcement Against Microsoft and AT&T. *No prior legal knowledge is required or assumed.*

TMG 5697 International Telecommunications—an Introduction (2.0 CEUs)

Designed to familiarize the US-based telecommunications professional with the availability and offerings from this country to and from the rest of the world, as well as what is available in the major economic and political global powerhouses. Comprehensive surveys and discussions focus on voice, data, video, and satellite services on a country by country basis. In addition to the European Common Market, the course covers North and South America, the Eastern bloc, Japan and the Pacific Rim, the Middle East, the Subcontinent, and Africa.

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TMG 5256 Microsoft Visual InterDev: Lecture/Lab (3.0 CEUs)

Covers all aspects of building a successful Web application using the Visual InterDev IDE including project management, content editing, link verification, and database development tools. Emphasizes designing intelligent user interfaces and linking content with data. Topics include active server page scripting and run-time HTML generation with VBScript, ODBC, ADO, and design-time controls. Learn how to use the built-in client-side

and server-side components and how to create, install, and use their own server-side ActiveX controls. *Prerequisite: Experience with Windows, relational databases, and HTML. Some programming experience with a language such as Visual Basic is highly recommended.*

TMG 5267 Java Network Programming (2.0 CEUs)

Provides a comprehensive in-depth treatment of network applications programming in Java. Students learn about Java networking including security, the Remote Method Invocation (RMI), and object serialization class libraries. Also, an overview of TCP/IP, TCP and datagram networking; client-side and server-side issues and multithreading. Topics include introduction to TCP/IP networking; cryptography of Java security; Java networking and I/O libraries; implementation of the DES and SHA symmetric encryption and hashing standards; and RMI and object serialization. Recommended to anyone seeking to write serious applications and servlets in Java.

TMG 5271 Effective Use of the Internet (2.0 CEUs)

Designed to enable participants to become more productive through more efficient and effective use of the Internet. An introduction to the Internet and its associated tools including the basic features of HTML scripting, approaches to writing successful Web pages, accessing resources, key strategies to conducting successful Internet market research, and how to market yourself using the Internet. *Pre-registration is required. Course is limited in size.*

TMG 5273 Web Development with HTML (2.0 CEUs)

Focuses primarily on making Web documents interactive and dynamic through the use of HTML forms, CGI scripting with PERL, and JavaScript. Other features of HTML not covered in Web Publishing with JavaScript (TMG 5281) will also be covered. More specifically, this course covers the fundamentals of communicating from input data to a server-side CGI script. Not an extensive study in scripting languages; instead, it will be a basic overview of PERL and shell scripting, with a primary focus on using existing scripts to perform well-known functions and integrating them with Web pages. Some advanced JavaScript techniques will

also be covered, as well as miscellaneous HTML items, such as the tag and its assorted uses. *Prerequisite: Effective Use of the Internet (TMG 5271).*

TMG 5274 Designing and Developing Web Content (2.0 CEUs)

Examines a range of issues around Web content development and design. Topics include the process of concept to content development, learning styles and instructional design as the foundations of content development, writing for the Web, media assets as Web content, the integration of technology and content, the contribution of art and graphics to content development, impact and usability on the end user, project management from a content development perspective, and issues dealing with security and third-party vendor services. Participants are asked to bring their experience as programmers, writers, graphic designers, and Web surfers to add to the depth of the class. Must know HTML or have worked with an HTML editor; knowledge of Adobe Photoshop is also helpful. Participants will leave the course with an understanding of content development and practical experience in designing and developing stronger Web content. Participants required to apply what they learn to an actual Web project.

TMG 5279 Image Editing for the Web (2.0 CEUs)

Covers the creating and editing of custom images for use in Web documents, as well as Web color theory, bandwidth considerations, and intelligent image utilization. Topics include image map creation, transparent images, file format issues, color correction, format conversion, image retouching, scanning secrets, animated images, and more. Uses Adobe Photoshop and an assortment of image utilities commonly found on the Web. Essential Photoshop skills, such as working with tools and filters, making selections, and compositing images are also covered. Students are required to have access to Adobe Photoshop.

TMG 5283 Java Programming (2.0 CEUs)

Learn the fundamentals of the Java programming language, including how to write, debug, and execute Java programs. Covers object-oriented programming techniques, as well as creating Java applets

and applications. Uses Java's Abstract Window Toolkit (AWT). Other topics include using threads, multimedia techniques, animation, audio, and exception handling. *Prerequisite: Cup O'Java (TMG 5300), C Programming (COM 5600), or programming experience.*

TMG 5284 Java Programming Advanced: Lecture/Lab (3.0 CEUs)

For software professionals who are interested in developing enterprise level applications. Reviews Java programming basics including object-oriented programming concepts in Java, exception handling, graphics, animation, and multimedia techniques. Also covers advanced features of the Java programming language such as threads, Java class libraries, performance considerations, Java in a client/server environment, Java interface to OLE and OpenDoc, Java interface to DCOM and CORBA, and the Java toolkits. *Prerequisite: Java Programming (TMG 5283) or equivalent experience.*

TMG 5286 Java Programming: Lecture/Lab (3.0 CEUs)

The fundamentals of Java programming—how to write, debug, and execute Java applications and applets. Covers basic object-oriented programming techniques and other basic concepts of Java including Abstract Window Toolkit (AWT), multimedia techniques (images and sound), animation, multithreading, Graphical User Interfaces (GUI), modifiers, input/output, exception handling, Java Database Connectivity (JDBC), JavaBeans, and native methods. Hands-on experience in the lab. *Prerequisite: Cup O'Java (TMG 5300), C Programming (COM 5600) or programming experience. Preregistration is required. Course is limited in size.*

TMG 5289 Internet/Intranet Security and Firewalls (2.0 CEUs)

Provides a detailed overview of basic security concepts as well as a practical understanding of UNIX and Internet security. Topics include WWW security; TCP/IP, NIS, NFS, and DNS; system security; remote access; electronic mail; firewalls; Virtual Private Network (VPN); and cryptography. *Prerequisite: UNIX Users' Lecture/Lab (COM 5444) and LANs, WANs, and Internetworking (COM 5843) or working knowledge of the UNIX operating systems and an understanding of LAN/WAN concepts and technologies.*

TMG 5291 Java Programming Advanced (2.0 CEUs)

Reviews Java programming basics including object-oriented concepts in Java, exceptions handling, graphics, animation, and multimedia techniques. Also covers more advanced features of the Java programming language including threads, Java class libraries, performance considerations, Java in a client/server environment, Java interface to OLE and OpenDoc, Java interface to DCOM and CORBA, and the Java toolkits. *Prerequisite: Java Programming (TMG 5283) or Java Programming Lecture/Lab (TMG 5268) or equivalent experience.*

TMG 5294 Web Client Concepts, Architecture and Programming: Lecture/Lab (3.0 CEUs)

30-hour hands-on course teaching the concepts related to tools and technologies to develop programmable front-end applications to Internet systems. Examines the architecture of browsers and how they can be used as a platform on which to build applications. The structure of applications using simple HTML, HTML Frames and Forms, Scripting technologies such as JavaScript and VBScript, and component technologies such as Java, JavaBeans, and ActiveX Controls will be compared. Multimedia aspects including audio, video and VRML will be examined. *Prerequisite: Internet Systems Architecture (TMG 5372), or familiarity with C/C++/Java.*

TMG 5296 CGI Scripting with PERL: Lecture/Lab (3.0 CEUs)

Hands-on course intended for Web programmers who are getting started with CGI. Topics include CGI input and output; and simple form processing. Server side includes advanced form processing; using dynamic pages; and passing data between forms. *Prerequisite: PERL programming and HTML or equivalent knowledge at the discretion of the instructor.*

TMG 5299 Internet Law Seminar (.4 CEUs)

Introduces the current legal and regulatory issues raised by the Internet/Web technology. A case study approach to the following areas: domain name acquisition and protection; copyright and trademark liability on the Web; on-line contract formation and enforcement; corporate e-mail and internet policies; security

and privacy issues; Internet advertising; federal and state proposals for Internet regulation; and jurisdiction and other legal frame-work issues. *No prior legal knowledge is required.*

TMG 5300 Cup O'Java: Concepts of Java Programming (.7 CEUs)

One-day course, designed for those who need an overview of Java technology and those who wish to pursue Java programming but do not have the required programming or C background. The course will cover the role of Java as a complete programming language used by the industry to build large scale applications, as well as Java applets, servlets, etc. The terminology, major concepts, and building blocks of Java will be defined and exemplified. There will be a quick overview of Java syntax, which is similar to C and C++. Java's ubiquity/universality, security, the Java Virtual Machine, JDK, JavaBeans, JavaScript, and Java libraries, are also presented. Some computer experience and some programming experience are preferred.

TMG 5301 Internet Marketing (2.0 CEUs)

Practical information on how to harness the capabilities of the Internet to accomplish marketing objectives. Review classic principles of marketing and apply them to the Web with actual case studies. At the end of this course, participants will be able to develop an Internet marketing plan for a business and an outline to implement a successful Web presence. *Prerequisites: Effective Use of the Internet (TMG 5271) or equivalent experience.*

TMG 5302 Understanding Electronic Commerce (2.0 CEUs)

How electronic commerce works in the real world. Examine consumer applications from credit cards to digital money; business applications from purchase orders and invoices to security. Learn strategies to get the most from e-commerce. Examine the future of electronic agents, microcash and microtransactions. Uses case studies.

TMG 5303 Building the Infrastructure for Secure Electronic Commerce (2.0 CEUs)

Gain an understanding of the technologies involved in building an infrastructure for securely conducting business between locations within an organization and on

the Internet. Topics include firewalls; copyright and trademark liability on the Web; Virtual Private Networks (VPN); Web security; authorization technologies; messaging security; TCP/IP security; and system security. *Prerequisites: Participants should have a working knowledge of the UNIX or NT operating system and an understanding of LAN/WAN concepts and technologies.*

TMG 5306 Web Site Usability (2.0 CEUs)

Covers the research findings of current web usability specialists, as well as a discussion of the class project. In the class project, refine a set of analytical tools for assessing the usability of a Web site through an interactive, iterative exercise. Course requires mastery of HTML, a working understanding of core Internet technologies, and several hours weekly to devote to working with other class members in organizing, implementing, testing, and redesigning the project Web site.

TMG 5308 Database Web Integration (2.0 CEUs)

Presents the concepts and techniques used to integrate existing and newly developed databases into the Web. Covers the major areas of interest: Web DB architecture, language, products, standards, and issues such as security and performance. Tradeoffs in approaches such as CGI, Web Servers, plug-ins and Java are given. Languages used for CGI programming from Perl to Java are contrasted; HTML and MIME types are described. Criteria for selecting the correct tool and development environment are presented. Methods to provide transaction processing in stateless environments; security and performance enhancement are provided. *Prerequisite: basic knowledge of database and Web technology.*

TMG 5311 Effectiveness of Marketing on the Web (2.0 CEUs)

Covers the evaluation of the effectiveness of marketing on the Web. Uses case studies of organizations who have used the Web as a marketing tool to evaluate effectiveness, Web site added-value, and return on investment (ROI). *Prerequisite: Internet Marketing (TMG 5301) or equivalent experience.*

TMG 5317 Web Server Administration (2.0 CEUs)

Provides an overview of the features that

make up a Web server, as well as the detailed information needed to implement and support a Web server. Covers the most popular industry Web server products. Topics include planning; installation and configuration; configuring and managing resource access; integration and interoperability; running applications; monitoring and optimization; and troubleshooting. *Prerequisite: NT System Administration: Server (COM 5762) or equivalent experience.*

TMG 5330 Web Development with XML (2.0 CEUs)

Explore the creation of a Document Type Definition (DTD); author documents in our newly created markup language, use a validating parser to process our documents, and finally view the result in a XML viewer. In addition, this course will discuss and implement the migration of existing HTML documents to XML. *Prerequisites: a mastery of HTML and a working understanding of Cascading Style Sheets (CSS1).*

TMG 5372 Internet Systems Architecture (3.0 CEUs)

Hands-on course provides an overview of technologies and architecture of systems used on the Internet. Gain a knowledge of how computer systems work and interact across the Internet. Look at the protocols and systems used to provide services on the Internet - WWW browsing services, electronic mail-based services, search services, and database access. Factors that impact performance, reliability and security will be examined. Also, the architectures and technologies for providing customized solutions - such as the programming languages and component-oriented infrastructures used on the Internet will be explored. *Prerequisite: Effective Use of the Internet (TMG 5271) or equivalent experience.*

TMG 5382 JavaScript Programming: Lecture/Lab (3.0 CEUs)

Covers event handling, special effects, and how to use VBScript and OLE control. The creation of global and local variables, methods, and custom objects will also be covered. Participants will learn how to create and use JavaScript libraries, and how to evaluate functions on the fly. The course is held in a lab setting for hands-on experience. *Prerequisite: Effective Use of the Internet (TMG 5271) or HTML knowledge.*

TMG 5399 Accelerated Web Site Development Primer (1.4 CEUs)

This 2-day course provides you with the background needed to enter the Accelerated Web Development course (TMG 5400). The course covers the introduction to the Internet and its associated tools, including the basic features of HTML scripting, approaches to writing successful Web pages, and the concept of marketing on the Internet.

TMG 5400 Accelerated WebMaster Certificate-Web Site Development Program (12.0 CEUs)

This program consists of the six main elements of the State-of-the-Art modules: Concept to Content Development Process; Programming HTML and JavaScript; Server Side Technology (CGI, Perl and Servers); Image Editing; eCommerce (including Database); and Internet Technology Protocols, Internet Security and Internet Law. In addition, you will produce a proposal for a Web system, an implementation plan, and a Web site. *Prerequisite: Accelerated Web Development Primer (TMG 5399).*

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COM 5430 Introduction to Software Engineering (2.0 CEUs)

Studies both technical and managerial issues relating to the software development cycle. Topics include: an introduction to human factors, requirements definition and specification, project planning, cost estimation, structured design concepts, object-oriented design concepts, implementation, and testing. *Prerequisite: experience with at least one programming language: C, Pascal, Fortran, etc. Experience with a software project is recommended.*

COM 5434 Systems Analysis and Design (2.0 CEUs)

Covers methods of analysis and design for new and existing software systems. Topics include process specification via data flow diagrams, data modeling with entity relationship diagrams, and real time systems analysis incorporating state transi-

tion diagrams. Prior experience with a software project is recommended. *Prerequisite: Previous experience in a software development environment or Introduction to Software Engineering (COM 5430).*

COM 5440 UNIX Users' Course (2.0 CEUs)

Introduces the concepts and techniques of the UNIX operating system through an examination of file structure/security, processes, user-to-user communications, text editors/formatters, shell programming, and system administration.

COM 5441 UNIX Users' Course: Lecture/Lab (2.0 CEUs)

Hands-on labs and lecture used to introduce the concepts and techniques of the UNIX operating system that are required to become a competent UNIX user: file structure/security, processes, user-to-user communications, text editors/formatters, shell programming, and system administration. This course is completed in ten weeks, which includes one 3-hour session per week. *Preregistration is required. Course is limited in size.*

COM 5443 UNIX System Administration 1 (2.0 CEUs)

Covers the fundamentals of setting up and administering a UNIX system to produce an efficient and secure operating environment. Topics include system startup and shutdown; file system partitioning and maintenance; user and group administration; backup and recovery; setting up terminals and printers; configuring kernels; system accounting. Considers automating procedure; UNIX system files and utilities; major I/O devices such as terminals, disks, tape, and printers. The writing of shell scripts to automate these procedures is stressed. Intended for system administrators, technical managers, programmers, and users of UNIX who want to better understand and utilize the UNIX environment. *Prerequisite: Experience as a UNIX user and shell script programming.*

COM 5444 UNIX System Administration 2 (2.0 CEUs)

Concentrates on the networking and security issues of a UNIX system or network of systems. Learn to plan, setup, and administer a secure UNIX system or a network of UNIX systems. Topics include setting up Ethernet networks; network administration; network backup and recovery; modems and uucp; UNIX elec-

tronic mail; send mail facility; system tuning; UNIX security issues. Differences between V and BSD approaches are discussed. The writing of shell scripts to automate these procedures is stressed. Intended for systems administrators, technical managers, programmers, and users of UNIX who want to better understand and utilize the UNIX environment. *Prerequisite: UNIX System Administration 1 (COM 5443).*

COM 5460 UNIX for Systems Programmers (2.0 CEUs)

A practical introduction for UNIX programmers to tools needed to maximize UNIX operating system facilities. Use of the system calls found in the AT&T System V and Berkeley 4.2BSD-based UNIX systems are discussed and clarified, with examples of practical applications. Trade-offs between using direct system calls and the C library routines provided with UNIX systems; AT&T System V and Berkeley 4.2BSD-based UNIX systems are compared and contrasted. *Prerequisite: Familiarity with UNIX and C programming.*

COM 5462 UNIX: Distributed Systems 1 (2.0 CEUs)

Covers the UNIX model: I/O, file and record locking, process/job creation, coordination and termination, signals, daemons, programming/process environment. UNIX IPC mechanisms are presented: pipes, FIFOs, messages, shared memory, semaphores, sockets, streams, TLI. Numerous client/server programs coordinated by the various IPC mechanisms are reviewed. Includes a primer on network concepts, components, configurations, and protocols. Specific communication protocol suites are described and compared (TCP/IP, XNS, SNA, NetBIOS, OSI, and UUCP). Programming and conceptual homework assignments are discussed in class. *Prerequisites: solid knowledge of C programming and the UNIX user interface.*

COM 5463 UNIX: Distributed Systems 2 (2.0 CEUs)

For software engineers, system administrators/managers, system designers, and technical managers who must understand/develop/manage distributed UNIX-based systems. Numerous networking programs are presented as well as two major APIs to the communications protocols: 4.3BSD Sockets and System V.3 Trans-

port Layer Interface (TLI). Examines Berkeley Sockets' UNIX domain protocols, port assignment, and socket system calls, options and addressing with a study of System V TLI functions, addressing and streams. Topics covered for both sockets and TLI include asynchronous I/O, out-of-band data, I/O multiplexing, stream pipes, and passing file descriptors. Remote command execution, remote login, and various implementations of RPCs are presented. Network security features provided by 4.3 BSD are contrasted with the Kerberos authentication system. *Prerequisite: UNIX: Distributed Systems 1 (COM 5462) or equivalent experience.*

COM 5464 UNIX: Distributed Systems 3 (2.0 CEUs)

Provides an in-depth coverage of the second of the two major APIs to the communication protocols, Systems V.3 Transport Layer Interface (TLI). The topics covered include basic and advanced TLI functions, out-of band data, I/O multiplexing techniques, stream pipes, and passing access right. Completes the Distributed Systems Series and culminates with a detailed study of the architecture of important network programs: remote command execution, remote login, TFTP, ping, line printer spoolers, time and date routines, the Kerberos authentication system, windowing environments and pseudo-terminals, remote tape access, and various implementations of RFCs. Each of these applications is discussed at the code and conceptual levels as models for new applications. *Prerequisite: UNIX Distributed Systems 2 (COM 5463) or equivalent experience.*

COM 5465 UNIX Internals 1: Files and Processes (2.0 CEUs)

Covers the fundamentals of UNIX kernel architecture, providing a basic understanding of the UNIX operating system design. Topics include the file subsystem, process creation, control, termination, signals, and operating system entry points. Data structures and algorithms are discussed; evaluates advantages and disadvantages of UNIX operating system. Differences between System V and Berkeley 4.x versions. Prepares participants for UNIX Internals 2 (COM 5466). *Prerequisite: UNIX for Systems Programmers (COM 5460).*

COM 5466 UNIX Internals 2:

Advanced Topics (2.0 CEUs)

Builds on the foundation of UNIX Internals I (COM 5465) and covers several advanced issues. Topics include process scheduling and system clock, context switching, memory management, paging and swapping, device driver basics and the I/O subsystem, system boot, the shell and unit processes, and system administration basics. Distributed file systems, interprocess communications, multiprocessor, and real-time UNIX systems are discussed. *Prerequisite: UNIX Internals 1: Files and Processes (COM 5465).*

COM 5560 Software Verification and Validation (2.0 CEUs)

Surveys state-of-the-art software verification and validation techniques. Topics include economic justification; software defect cost models; cost-effectiveness of software QA; and measuring the cost of quality. Verification processes and procedures are discussed with emphasis on software inspections, metrics, and configuration management. Validation processes and procedures are reviewed with emphasis on unit testing, integration testing, validation testing, and metrics. A software reliability growth modeling process is presented. Participants should have an understanding of basic software engineering concepts. *Prerequisite: Previous experience in a software development environment or Introduction to Software Engineering (COM 5430).*

COM 5570 Data Warehousing: Approach, Strategies, Management and Implementation (.7 CEUs)

Designed for business executives, provides comprehensive information on all stages of design and implementation for company-wide data warehousing. Includes an up-to-date industry overview, a discussion of the high-level approach to justifying the effort, profit evaluation, and cost estimation methods. Staffing requirements for building a data warehousing team and marketing ideas are outlined.

COM 5571 Data Warehousing: From Design to Implementation (2.0 CEUs)

Provides technical knowledge of data warehousing development and implementation. Covers the main components and general architecture of data warehousing through a variety of techniques. Various stages of implementation and organiza-

tional implication of a data warehouse are described. An analysis of risk areas included along with a discussion on data analysis, data validation, and data modeling. Evaluates existing data extraction tools, OLAP tools, and data mining tools.

COM 5582 ATL/COM Programming (2.0 CEUs)

COM is the grand unifying technology on Microsoft platforms, providing the core infrastructure for this and the next generation of Windows. Explores COM programming from the ATL (Active Template Library) perspective. Topics include review of C++ templates; overview of COM fundamentals; step-by-step tour of the ATL architecture; containment and aggregation; using COM objects from Visual Basic; marshalling; events, collections and connection points; persistence; building Web-capable controls. Designed for experienced C++/Windows developers who want to use COM effectively. *Prerequisite: C++ Programming (COM 5625) and WIN32 Programming (COM 5594).*

COM 5583 ActiveX Development with Visual Basic (3.0 CEUs)

Focuses on ActiveX technology that is now available to the Visual Basic developer. Covers the theory and practical implementation of this technology to solve some common business problems. Includes how to create and utilize ActiveX components: code components (in-process and out-of-process servers); ActiveX controls; ActiveX Documents; utilize application components—ActiveX automation; use ActiveX controls to develop a Web page. *Prerequisite: Participants should be able to use Microsoft's Visual Basic to perform the following activities: describe the purpose and use of the intrinsic controls, use properties and methods in code, program multiple events for those controls, create a multiple form application, code and use a procedure (function and subroutine), add a menu to the application, use the debugger, and create an executable.*

COM 5584 Writing OLE and ActiveX Control (2.0 CEUs)

Explores component technology from the OLE/COM perspective and teaches participants how to write technically sound, robust ActiveX controls. Covers object technology; COM, OLE, and MFC; OCX and active architecture; and practical control development. How to inre-

grate controls into various containers such as Microsoft's Visual Basic will also be discussed. Upon completing this course, participants will be able to design and write professional OLE-based controls. *Prerequisite: This course assumes a working knowledge of C++.*

COM 5588 Windows Programming Using Windows 95 (2.0 CEUs)

An introductory-level Windows programming course based on Charles Petzold's *Programming Windows 95*. Covers the basic topics in Windows programming including Windows management, painting with text, keyboard and mouse input, Windows timers, child windows controls, memory management, Windows resources, menus, accelerators, dialog boxes, GDI graphics, bitmaps, fonts, and the clipboard. Upon completion, participants will be able to develop technically sound Windows applications and understand the theoretical underpinnings of Windows programming. *Prerequisites: Working familiarity with the C programming language. Participants must own or have access to a Windows development system (a suitably configured PC).*

COM 5593 Windows Programming Using MFC (2.0 CEUs)

Microsoft's Foundation Class (MFC) is a rich C++ class library integrated with a powerful development environment. Covers how to use C++ and MFC effectively to develop sophisticated Windows applications. Examines the MFC Document/View Architecture, how to create 32-bit (WIN32) Windows programs using Visual C++, how to use sound object-oriented design practices covering the Document/View Architecture, MDI, message handling, resources, menus, toolbars, status bars, GDI graphics, dialogs, standard controls, property sheets, common controls, common dialogs, serialization, container classes, and DLLs. Upon completion of this course, participants will be able to design and write useful, technically sound MFC-based applications. *Prerequisite: C++ Programming (COM 5625). Preregistration is required. Course is limited in size. Fall, Winter and Spring.*

COM 5594 Win32 Programming (2.0 CEUs)

Explores the more advanced features of the Win32 API, Using C, participants will investigate: processes, private heaps and

virtual memory management (VMM), IPC mechanisms including memory mapped files, mailslots, pipes, and RPCs. Threads and their synchronization, DLLs, thread local storage, and file I/O will also be covered. Upon completion of this course, participants will be able to design and write useful, technically sound Win32 programs. *Prerequisite: Windows Programming Using Windows 95 (COM 5588). Preregistration is required. Course is limited in size.*

COM 5600 C Programming (2.0 CEUs)

Provides an introduction to the C programming language. Basic programming concepts and structured programming techniques with emphasis on C syntax, operators, data types, and control flow constructs. Focuses on arrays, pointers, and structures. *Prerequisite: Programming Concepts Using C (COM 5605). Preregistration is required. Course is limited in size.*

COM 5605 Programming Concepts Using C (2.0 CEUs)

For those with little or no programming experience. Focuses on problem-solving and structured programming techniques, as well as an introduction to the C programming language including top-down design techniques for algorithms and code; program flow of control; data representation (binary, octal, decimal, hex); arrays and functions. C syntax, operators, data types, and basic I/O. Although there is some overlap, this course is intended to create an easy transition into C Programming (COM 5600). *Preregistration is required. Course is limited in size.*

COM 5612 C Pointer Seminar (.7 CEUs)

Seven-hour seminar assumes some general knowledge of C, but assumes no familiarity with the syntax of pointer definition. The first session covers the syntax of pointers and illustrates pointer usage. The second session builds on the knowledge of pointers and their use; illustrates additional and possibly unusual aspects of pointers, and also introduces the concepts of pointer usage in linked lists.

COM 5614 C Programming: Advanced Topics (2.0 CEUs)

Designed for the C programmer who desires a more complete understanding of the C language. Topics include file I/O; the C preprocessor; the C runtime library; advanced pointer concepts. Also includes

writing efficient C code; debugging techniques; program portability; dynamic storage allocation. *Prerequisite: C Programming (COM 5600) or equivalent C programming experience. Preregistration is required. Course is limited in size.*

COM 5620 Data Structures Using C (2.0 CEUs)

Introduces the concept of data abstraction. C's built-in data structures are reviewed, as well as the topics of I/O, dynamic memory allocation; linked lists, stacks, queues, and recursion. More advanced data structures such as binary tree and 2-3 trees are explored. Various sorting and searching techniques such as HeapSort and hashing are included. Algorithm complexity is also discussed. *Prerequisite: C Programming: Advanced Topics (COM 5614) or equivalent C programming experience.*

COM 5621 Data Structures in C++ (2.0 CEUs)

Introduces participants to data organization and problem-solving concepts and shows how to complement these concepts in the C++ programming language. Object-oriented concepts and encapsulation are introduced. The C++ capabilities of classes and inheritance are incorporated into the discussions of program structure and code development. Lectures cover classical data structures such as vectors, stacks, queues, linked lists, trees, and graphs. In-class applications demonstrate algorithmic concepts such as recursion, backtracking, divide and conquer, and sorting and searching. Requires the completion of several programming assignments. *Prerequisite: Programming experience and exposure to C++.*

COM 5625 C++ Programming (2.0 CEUs)

Introduces C++, including C++ syntax and object-oriented design using C++. Topics include operator and function name overloading; inline functions; designing classes; public, protected, and private class member partitioning; class derivation and inheritance hierarchies; friend functions and the iostream library. C programming experience and data structure knowledge are assumed. *Preregistration is required. Course is limited in size.*

COM 5626 Object-Oriented Programming (2.0 CEUs)

Covers applications to systems programming, artificial intelligence, graphics, scientific programming, compiler design, computer-based modeling/simulation, software engineering, database design, and knowledge representation. Includes object-oriented programming; single inheritance vs. multiple inheritance, structured vs unstructured object-oriented programming, metrics of good object-oriented programming, subtyping and the compatibility hierarchy, growing vs. building software, designing a meta-class vs. designing a class, the importance of static/dynamic type checking in object-oriented programming, and finding a “good” definition of data encapsulation. *Prerequisite: Programming experience, preferably in C.*

COM 5627 Object-Oriented Design (2.0 CEUs)

Topics include object-oriented programming concepts—encapsulation, inheritance, and polymorphism; OMT methodology; framework design issues—subclassing vs. subtyping, containment vs inheritance, delegation, aggregation, association, and interfacing techniques; commercial class libraries and application frameworks; containment classes; dynamic techniques—the SmallTalk model, class factories, eventlists and events, dynalists, and interfaces; identification of subsystems. In-class and take-home projects apply the object-oriented techniques in typical application design situations. Familiarity with an object-oriented programming language is helpful but not required. *Prerequisite: Object-Oriented Programming (COM 5626) and programming experience (any language).*

COM 5628 Advanced C++ Programming (2.0 CEUs)

Develops proficiency in advanced C++ idioms and techniques. Participants should have access to a C++ compiler. Class and function templates will be reviewed and the Standard Template Library (STL) will be examined and contrasted with more traditional object-oriented class libraries. The handle/body idiom (also called the bridge pattern or the Cheshire cat—“nothing left but the smile”) will be applied to a String class. Various approaches to providing object and data structure persistence will be examined. Other topics include explanations of com-

piled-supplied member functions; implicit conversion of user defined classes; memory management (including placement new) and how and when to redefine the new/delete operator; code instrumentation and debugging; the virtual constructor problem; functions as objects (functions); exception handling; multiple inheritance issues (including virtual base classes); code reuse and designing for reuse; and OOD will be compared to other design approaches. Source code for examples and exercises is provided. *Prerequisite: C++ Programming (COM 5625) and/or considerable basic C++ experience. Preregistration is required. Course is limited in size.*

COM 5637 C++ Standard Template Libraries (STL) Programming (2.0 CEUs)

Provides a review of template classes and template functions followed by an overview of the STL components (containers, algorithms, iterators, function objects, adaptors, allocators). Each of the STL components will then be examined via a series of STL programming examples. *Prerequisites: A C++ compiler that supports the STL. C++ Programming (COM 5625) or previous C++ programming experience.*

COM 5641 PERL Programming (2.0 CEUs)

Designed for programmers or system administrators who write tools or shell scripts, produce reports, manipulate flat text files, etc. Topics include control constructs, subroutines, file handles, string manipulation and pattern matching, associative arrays and database files, lists, report format descriptors, packages, the PERL library, and the PERL debugger. *Prerequisites: Programming Concepts Using C (COM 5605), C Programming (COM 5600), experience programming in a high-level language or UNIX shell. Experience using an operating system (e.g. UNIX) is assumed.*

COM 5665 Introduction to Distributed Computing with CORBA (2.0 CEUs)

Teaches the basics of building distributed applications using the Object Management Group's (OMG) Common Object Request Broker Architecture (CORBA), using the Java programming language. Learn how to analyze and design distributed applications, how to develop object interface specifications using the OMG's

Interface Definition Language (IDL) as well as become familiar with CORBA services. Course also focuses on developing one or more non-trivial examples using the Java language and a Java-based ORB. CORBA architecture will be contrasted with its major competitor, COM/DCOM from Microsoft. Participants should have a basic understanding of object-oriented design and programming concepts and at least some knowledge of the Java programming language. *Prerequisites: Java Programming (TMG 5283) or equivalent and Introduction of Object-Oriented Programming (COM 5626) or equivalent experience.*

COM 5863 Introduction to Client/Server Computing (2.0 CEUs)

Explains the key concepts of client/server and the benefits of client/server computing including distributed services and performance. The major components of a client/server system and how they relate to each other; back-end server and front-end client components are discussed. An overview of the relational database model, basic SQL, and GUI concepts; examples of client/server applications are discussed from the server as well as the client perspective. Also considers the major issues in client/server such as data integrity, referential integrity, concurrency control, replication, etc. *Preregistration is required. Course is limited in size. Fall, Winter, and Spring.*

COM 5873 Client/Server Software Testing (2.0 CEUs)

Reviews client/server system design options, performance and usability issues, and development approaches such as RAD that create special testing requirements. Analyze how multilayer client/server architecture, multivendor hardware components, distributed processing, and data impact testing requirements throughout the development cycle; discuss test planning strategies and management. Also examine a risk-based approach for allocating test resources and minimizing risk and survey and evaluate current automated tools and other products for testing client/server applications. Course is intended for IT professionals with a basic knowledge of software testing and client/server architecture. Participants will gain an understanding of how to develop strategies for analyzing testing requirements in a client/server environment, selecting

and applying testing tools, and incorporating risk management techniques into test planning.

COM 5874 Introduction to PowerBuilder: Lecture/Lab (3.0 CEUs)

Teaches design and development of a Windows-based graphical user interface (GUI) and client/server application. Using PowerBuilder's Script language and database, application, and menu painters. In the process of developing the application, the use of attributes, functions, variables, message boxes, controls, and other key features are taught and practiced. Use PowerBuilder Desktop and the WATCOM database. Access to other industry leading database servers, such as, Oracle SQL, Server NT, and SYBASE, will be presented. *Preregistration is required. Course is limited in size.*

COM 5879 Developing PowerBuilder Applications: Lecture/Lab (3.0 CEUs)

Hands-on course intended for the novice to intermediate PowerBuilder developer to provide the knowledge required to develop a PowerBuilder application, create all necessary windows, menus, and other PowerBuilder objects, write associated PowerScript code, debug and test the application, create a distributable executable file, and produce any necessary documentation. A brief review of such topics as development methodologies, standards and conventions, and the creation and distribution of PowerBuilder applications are also covered. *Prerequisites: Introduction to PowerBuilder Lecture/Lab (COM 5874), programming experience, and a working knowledge of the basic of PowerBuilder, including painters, datawindows, and the PowerScript languages are necessary.*

COM 5883 UNIX Shell Programming (2.0 CEUs)

Covers the Bourne shell as a programming language with review of the basic features of the shell: metacharacters, quoting, creating new commands, passing arguments to them, the use of shell variables, and some elementary control flow. Shell scripts are developed that can be used as new utilities and some of the UNIX system shell scripts are examined. Basic knowledge of the UNIX system is assumed.

COM 5906 Writing Windows Applications Using Microsoft Visual Basic (2.0 CEUs)

Lecture-only course covers the essentials of writing a Windows application using the Visual Basic programming language. Topics include objects and their properties, data types and variables, functions and procedures, menus, dialogs, debugging techniques, DLLs, and event-driven programming. Sample programs are used to supplement the lecture. Participants should have access to Microsoft Visual Basic and some programming experience in a non-Windows environment.

COM 5908 Programming in Visual Basic: Lecture/Lab (3.0 CEUs)

Designed for software developers, designers, and consultants. Describes event-driven and Windows-oriented programming and how it differs from traditionally structured programming. How Visual Basic makes it easy to "draw" Windows applications in a simple intuitive manner. Features of Visual Basic Windows applications are described including: project creation and management, the standard toolbox controls, menus, debugging functions, database and I/O interfaces, and the syntax of the Visual Basic language. *Prerequisite: Prior programming experience. Preregistration is required. Course is limited in size.*

COM 5914 X/MOTIF Programming (2.0 CEUs)

Reviews the basic concepts of programming in X. Topics include defining X; creating the main shell; making the program user responsive; dialog widgets; menus, list, text, widgets, and labels; compound strings; container widgets and radioboxes; cutting and pasting—the clipboard; and open look. At the end of the course, participants should be able to write X applications. The MOTIF programming language will be used in class. *Prerequisite: C Programming (COM 5600). Preregistration is required. Course is limited in size.*

COM 5917 Client/Server Programming: Lecture/Lab (3.0 CEUs)

Concentrates on connecting front-end applications written in Visual Basic to Microsoft SQL Server database running on NT. Various methods for implementing the database access paradigm are compared and contrasted, including jet en-

gine, ODBC, remote data objects, and VBSQL. Exercises in several of these techniques constitute the programming aspect of the course. In addition, Microsoft SQL Server architecture is reviewed. Significant time is spent writing and executing stored procedures in Transact SQL from the front-end applications. Concepts essential to client/server programming projects will be discussed. *Prerequisite: A working knowledge of Windows programming using Visual Basic or equivalent. A working knowledge of ANSI SQL helpful but not required. Preregistration is required. Class is limited in size.*

COM 5925 Visual Basic Special Topics Seminar (.7 CEUs)

One-day course covers advanced topics in Visual Basic programming: advanced controls—status bar, toolbar, treeview, listview, and tab strip control; DLLs and the Windows API in Visual Basic; printing; creating and using classes; multiple Document Interface (MDI); DDE programming; OLE concepts; using the profiler and tips on optimizing Visual Basic programs. Course assumes the completion of a beginning Visual Basic course or equivalent experience.

COM 5929 Advanced Visual Basic Programming: Lecture/Lab (3.0 CEUs)

Reviews the basic topics of Visual Basic and then describes and demonstrates advanced topics for professional applications. Successful completion of this course will enable participants to build Visual Basic applications using multiple forms; enhance Visual Basic applications through the use of available DLLs; understand the limitations of Visual Basic; use graphical methods for both visually enhancing applications and overcoming some limitations of Visual Basic; access database data via the data control and code; and create and modify database structure via code. Also, dynamic data exchange (DDE) and object linking and embedding (OLE); add context-sensitive help to applications; and create multiple document interface (MDI) applications. *Prerequisites: The course is designed for participants with a basic working knowledge of Microsoft Visual Basic and event handling. Participants should be able to use Visual Basic to build the graphical user interface using the basic controls, assign properties to the controls, write code for the associated*

event handlers, and complete the application. Should have access to a computer with Visual Basic (professional edition recommended) to be able to complete homework assignments. Preregistration is required. Course is limited in size.

TMG 5510 Software Project Management (2.0 CEUs)

Covers the tools and techniques used to manage small, medium, and large programming efforts. Topics include project planning, project management tools (i.e., PERT/CPM/GANTT), estimating, and human resources management. Discusses all phases of the software project from proposal writing through post-release maintenance issues. Plan and develop a project of your choice, which provides a practical application of the topics covered in class. Recommended for programmers, system analysts, and managers. *Prerequisite:* Previous experience in a software development environment or *Introduction to Software Engineering (COM 5430)* and *Systems Analysis and design (COM 5434)*.

INFORMATION TECHNOLOGY

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COM 5532 SQL-in-a-Day (.7 CEUs)

This one-day course discusses relational concepts and database design and basic SQL functionality. This is first done conceptually, then through the extensive use of examples on two specific databases. The focus is on interactive SQL. At the end of the day, participants will be able to create and execute a database schema, load the database with initial data, and compose basic retrieval and update statements against this database. Participants will also understand the power, flexibility, and universality of SQL (a.k.a. "integralactic dataspeak") systems.

COM 5537 Relational Technology 1 (2.0 CEUs)

Examines the advantages of a DBMS, in particular, of an RDBMS; the three-level architecture of a DBMS: external, conceptual, internal; internal level: physical storage and access techniques; interactive SQL; databases in the client/server environment. Explains the relational model

as the world standard due to the advantages of the data-driven approach, especially of relational systems. Presents the ANSI/SPARC three-level architecture for DBMS followed by a discussion of the internal level, including hashing, indexing, clustered indexes, B-trees, pointer chains, and compression techniques. Language topics include SQL's DML (Data Manipulation Language), DDL (Data Definition Language), DCL (Data Control Language), and DTL (Data Translation language), embedded SQL, cursor manipulation, and dynamic SQL. Other topics include the system catalog, current views, the role of the DBA, DBA utilities, backends and frontends, and client/server configurations. Overviews of DB2 and Ingres.

COM 5538 Relational Technology 2 (2.0 CEUs)

Examines embedded SQL (ESQL); relational algebra and calculus; a detailed study of the relational model; database design: structure and integrity. Completes the language components of the series by studying ESQL and relational algebra. Examines the syntax and constructs of static and dynamic ESQL; the twelve relational rules of code; the database, relation, domain, missing information, predicates, set operations, and primary, candidate, and foreign key concept. Studies the four subcomponents of database design: E/R diagrams, synthesis, analysis (normalization theory), and integrity definition. Date's synthesis design approach using kernels, characteristic associations, and designations is illustrated through example applications. Functional dependence and first through fifth normal forms discussed as design-verification criteria. Integrity classifications and how declarative integrity statements, rules, triggers, stored procedures, and deferred integrity can be used to safeguard the integrity of the database.

COM 5539 Relational Technology 3 (2.0 CEUs)

Describes transaction management; recovery and concurrency; query optimization; availability and security; introduction to DDBMS (Distributed DBMS) and client/server systems. Focuses on the database engineer who provides the underlying technology for the DBMS capabilities described in *Relational Technology 1 (COM 5537)*. Various logging schemes

and levels are presented. Lock types, locking strategies, and levels of isolation. A comparison of hardware and software techniques, including two-phase commit and replication, to provide 24 x 7 availability. The state of networked vs distributed vs. client/server database technology and the commercial products to attain the 12 objectives of DDBMS are discussed.

COM 5542 Database Design 1 (2.0 CEUs)

Examines CONCEPTUAL design: data modeling, design methodologies, design and integration, quality of conceptual design, and data dictionaries. How to conceptualize, design, reverse engineer, or modify large database systems. The Entity-Relationship model, including coverage of generalization hierarchies, set-subset relationships, and semantic constraints. Strategies for schema design, qualities of schema design, transformations to improve restructure, document and maintain the schema design. Transformations for achieving minimally, expressiveness, self-explanation, and normalization are given. *Prerequisite:* *Relational Technology Series* or equivalent experience.

COM 5543 Database Design 2 (2.0 CEUs)

Combines functional analysis with data analysis to show how to create an integrated database environment for a variety of applications. The primitives and strategies to design, improve, and maintain a functional schema, together with a methodology to merge the database and functional schemes. LOGICAL design issues including partitioning of entities, primary key selection, merging entities and relationships, decisions about derived data, and integrity constraints are detailed. *Prerequisite:* *Relational Technology Series* or equivalent experience.

COM 5545 SQL Oracle (.7 CEUs)

One-day course continues the discussion of SQL-in-a-Day (COM 5532) by exploring the Oracle SQL—Schema in Oracle DDL, containing referential and domain constraints, indexes and clusters, and storage characteristics; the SQL*PLUS environment—how to set up and use its capabilities for ad hoc queries, writing scripts, debugging and tuning queries, and creating formatted reports. PL/SQL, used in Oracle's front-end tools, will be used

to build DB objects: stored procedures, packages, subprograms, triggers, exception handlers, and scripts. *Prerequisite: SQL-in-a-Day (COM 5532).*

COM 5552 Building Intelligent Databases with Oracle (3.0 CEUs)

Focuses on programming the Oracle server to create an intelligent, active database. The course project is to incrementally build an Oracle7 database from conceptual schema to a completed intelligent database using SQL2's DDL and the completed intelligent database. The manipulation schema is built using Oracle's stored procedures, functions, and packages. The integrity schema is completed using triggers. A methodology and classification of triggers is presented. Exception handling, testing procedures, relevant system catalogs, Oracle's PL/SQL, Oracle's extensions to SQL, and the software engineering aspects of a programmable server are covered. Each participant is expected to have Personal Oracle (available on the Internet and in computer stores) on a PC for project development. *Prerequisite: SQL-in-a-Day (COM 5532). Preregistration is required. Course is limited in size.*

COM 5553 SQL for Smarties:

Advanced SQL (.7 CEUs)

One-day seminar to turn a casual SQL user into an expert SQL programmer. Addresses common problems in vendor-neutral SQL, relying primarily on SQL1 and those SQL2 features that have already been implemented by the leading vendors. Course is not syntax-based but is a collection of examples to expose the power of SQL to perform queries not immediately evident from the syntax. All SQL constructs are revisited, gaining new insights to their meaning and application. Further topics include database design and data design, statistics, temporal data, optimizing queries, building and managing arrays, trees, and graphs. *Prerequisite: For maximum course benefit, some database experience is preferred.*

COM 5555 Structured Query Language (SQL): Lecture/Lab (3.0 CEUs)

An overview of the relational database model is presented as the foundation for this Structured Query Language (SQL) hands-on course. Teaches how to construct simple and complex SQL queries using Data Definition Language (DDL) to create and modify database objects and Data Manipulation Language (DML) to

add, delete, modify, and extract data. SQL expressions, joins, queries and subqueries, regular functions and aggregate functions, procedural extensions and control-of-flow are presented and practiced through lab exercises. Stored procedures and triggers are also introduced. *Preregistration is required. Course is limited in size.*

COM 5557 Advanced SQL (3.0 CEUs)

Picks up where the SQL course (COM 5555) left off covering more advanced topics: SQL cursors, indexes and other physical attributes of an RDBMS, transaction control, security, error handling, dynamic SQL and performance considerations. Also, various methods of using SQL in programming languages including precompiled SQL and ODBC. *Prerequisite: Structured Programming Language (SQL): Lecture/Lab (COM 5555) as well as a background in programming in a high-level computer language and familiarity with relational databases.*

COM 5921 Introduction to Oracle Using SQL*Plus (3.0 CEUs)

Hands-on, 30-hour lecture/lab course provides an overview of relational database concepts and how to retrieve and manipulate data through standard ANSI Structured Query Language (SQL) and Oracle's SQL*Plus. Upon completion of this course, participants will be able to query, insert, update and delete data from an Oracle RDBMS using standard ANSI SQL and SQL*Plus commands to extract and organize information from the database, manipulate information in database tables, create and drop database objects such as tables, views, indexes, etc. An overview of object-oriented (OO) concepts and terminology also provided. The topics provide the foundation for advancing to Oracle's Procedural language SQL (PL/SQL) and the design, development, and administration of an Oracle database.

COM 5922 Advanced Oracle Programming with PL/SQL (3.0 CEUs)

A 30-hour lecture/lab course providing hands-on experience with Procedural Language SQL (PL/SQL) which is the procedural language used in stored procedures, functions, packages and database triggers. Covers cursors and cursor processing which are essential in PL/SQL as well as the PL/SQL block structure, functions, and exception (error) handling in PL/SQL block which can be embedded

in SQL*Plus. *Prerequisites: Some experience with Oracle's SQL*Plus database access language or have taken a basic SQL*Plus course. In addition, some experience with program logic in a standard programming language such as Basic, C, Fortran, COBOL, etc.*

COM 5930 Database Programming in Visual Basic (.7 CEUs)

One-day course covers the basic concepts of using Visual Basic in conjunction with databases. At the completion of this course, participants will have a basic understanding of how to connect to and access a database with Visual Basic. Topics include Visual Basic's data access objects; how to connect to external databases and ODBC databases; basic SQL statements; how to access and query databases; how to use the data bound controls and pass through queries. This course assumes the completion of a beginning Visual Basic course or equivalent experience.

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CHE 5410 Thin Film Deposition Techniques (2.0 CEUs)

Discusses theory and practice of processes and equipment for vacuum deposition of thin films. Includes evaporation, sputtering, chemical vapor deposition, advanced ion beam, plasma, arc, and laser methods. Applications of thin film coatings addressed include electronics, optics, data storage, aerospace/protective coatings, and other topics of class interest. College-level science and/or thin film deposition experience is recommended.

EE 5637 VHDL—an Introduction (2.0 CEUs)

This course introduces VHDL syntax and semantics and explores how VHDL simulation can be effectively integrated into the system development process. Hands-on modeling and simulation complement the lecture material. Issues of specification resolution, chip-level modeling, and the use of VHDL as a synthesis language are examined.

EE 5680 Introduction to Solid State Principles (2.0 CEUs)

Introduces the modern integrated circuits and optoelectronic devices. Using a classical textbook, the course seeks to answer basic questions. Numerous examples and analogies are used to make the course interesting. Intended for persons with little or no background in the field and is excellent preparation for Principles of Semiconductor Devices (EE 5685). Some elementary mathematics and physics background is useful.

EE 5685 Principles of Semiconductor Devices (2.0 CEUs)

Introduces the operating principles of integrated circuits. Emphasis is on providing the participant with a thorough understanding of the fundamentals. Presentation of the material is made interesting by use of analogies and practical examples. Intended for engineers, technicians, managers, and others interested in learning how modern ICs work and where the future is going. Introduction to Solid State Principles (EE 5680) is recommended background.

EE 5690 Characterization of Materials and Devices (2.0 CEUs)

State-of-the-art characterization techniques necessary for integrated circuit development. Topics include electrical, optical, and physical measurements as a means for understanding substrate material parameters, device parameters, and process monitoring. Specific topics include Hall effect and resistivity measurements, C-V techniques for carrier concentration profile determination, DLTS, line width measurements, contact resistivity, measurement of transistor characteristics for device modeling, optical microscopes, scanning electron microscopy, end point detection, surface analysis (Auger, SIMS, etc.), and specialty electrical test structures for parameter extraction. Knowledge of semiconductor devices and IC processing is recommended.

EE 5699 Semiconductor Optoelectronics (2.0 CEUs)

An introductory course that begins with a discussion of the electrical and optical properties of semiconductors and the various materials from which devices are made. Also includes the operating principles of diode lasers, LEDs, and radiation detectors. Current device technologies, such as

guided wave devices, heterojunctions, quantum wells, quantum barriers, distributed feedback, vertical cavity lasers, and integrated optoelectronic circuits, are explained. Devices for detecting optical radiation, such as photodiodes, solar cells, and CCDs, are described in detail. Several of the lectures deal with currently available optoelectronic devices as well as their varied and expanding applications. Targeted for engineers, designers, managers, technicians, and others involved with the fabrication and/or use of these devices for telecommunications, instrumentation, manufacturing, measurement, and medical use.

EE 5705 Integrated Circuit Fabrication (2.0 CEUs)

Details integrated circuit processing methods for silicon and gallium arsenide technologies. Provides a background for beginning process engineers and others with semiconductor experience who desire knowledge of IC fabrication. Course content includes silicon wafer preparation, epitaxy, ion implantation and thermal processes, chemical vapor deposition, lithographic techniques, plasma processes, and process control techniques. Current trends in VLSI technologies are discussed. Principles of Semiconductor Devices (EE 5685) or the equivalent is recommended background.

EE 5707 Introduction to Microelectromechanical Systems (MEMS) (2.0 CEUs)

Introduces the design and fabrication of three primary types of MEMS fabrication processes: bulk micromachining, surface micromachining, and microforming. A variety of sensor and actuator applications also covered. Includes pressure sensors, accelerometers, chemical sensors, actuators (thermal and electrostatic), micromotors, rotating and scanning micromirrors, and automated microassembly systems. Ideal for new managers and engineers entering the rapidly expanding field of MEMS.

EE 5710 Photolithographic Processing for IC Fabrication (2.0 CEUs)

In-depth technical training course on the theory, equipment, materials, and processes used in semiconductor photo-lithographic processing. Designed for the new and experienced photofab engineer or technician to understand the relationship of resists to the rest of the semiconductor

process. Topics relating to equipment and materials are presented, including market background, basic requirements, optical theory, exposure methods, composition to resists and developers, photochemistry, and thermal chemistry. Processing topics are also discussed, including adhesion, application, baking, development, wet and dry etching, removal, and new materials processes.

EE 5712 Introduction to Infrared Emitters, Detectors and Systems (2.0 CEUs)

An overview of infrared-related technology and its commercial and military applications. Focuses on device and component level issues: infrared sources, detectors, and propagation media. Sources are separated into optical emitters, such as lasers and diodes, and heat sources, such as humans and aircraft. Reviews current state of the art and future challenges. Also reviews commercial and military systems and applications. On the commercial side, environmental monitoring, heat and power sensing, free-space, and fiber communications. Military applications include night vision, heat-seeking missiles, laser guided munitions, laser radar, and infrared search and track.

EE 5720 Semiconductor Interconnection and Packaging (2.0 CEUs)

An overview of the latest packaging and interconnection trends available to emerging technologies. Reviews semiconductor assembly and interconnecting substrate materials and processes. Construction and basic characteristics of single-chip packages, hybrid microcircuits, and multichip modules provide a perspective of the tradeoffs of using each for packaging and interconnection. Participants will obtain information that will lead to intelligent microsystem packaging decision making.

EE 5724 VLSI ASIC Design for Practicing Engineers and Managers (2.0 CEUs)

Newly revised, covers the essentials of ASIC design and is intended for engineers and managers entering this field, as well as those more experienced in VLSI circuit design. Major topics include VLSI customization methodologies gate array, standard cells, compilers, full custom and field, programmable devices, and combinations of analog and digital in both silicon and GaAs. VLSI customization technologies (for both silicon [CMOS,

BICMOS, ECLJ and gallium arsenide), process flow (schematic capture, simulation, testability and fault analysis), state-of-the-art devices (such as HBTs emphasizing their application and importance), and vendor information (description and summary of chips, tools, and software available from leading vendors) are covered.

EE 5775 Fundamentals of Microwave Measurements (2.0 CEUs)

A basic course in microwave measurements and measurement techniques from RF through microwave and millimeter wave bands. Topics include power, frequency, network analysis, spectrum analysis, and noise measurement. Techniques, precautions for each measurement type, and required instrumentation configurations are stressed. A must for engineers new to microwave device and circuit measurements but also very useful for those involved with new high-frequency components.

EE 5897 Principles of RF/Microwave Amplifier Design (2.0 CEUs)

Focuses on the terminology and principles in RF and microwave amplifier design. Covers amplifier fundamentals and transmission line concepts, Smith Charts, how two-port networks are represented, and how to design matching networks. Also topics on RF/microwave amplifier design including gain/stability considerations, noise optimization, and biasing/operating characteristics. Computer simulation and measurement techniques will also be covered. No prior RF amplifier design required.

NURSING

617.373.5796 • TTY 373.2825
www.neu.edu/uc

NUR 5600 Disease Management and Nursing: A New Demand for the Art and Science of Nursing Practice (.4 CEUs)

Provides nurses with a comprehensive, integrated, and interdisciplinary approach to the management of chronic illnesses. Participants will gain an understanding of the tools, roles, and systems necessary to create an effective disease management program that will help patients reach and maintain their highest levels of health throughout their lives. The workshop will include case studies and the opportunity

for participants to develop disease management plans. Bonus: participants will receive complimentary CareMap® Tools for two chronic illnesses.

NUR 5601 Suturing Workshop for Advanced Practice Nurses (.4 CEUs)

This workshop will provide intensive hands-on training in three closure techniques, as well as discussions on wound anesthesia, wound preparation prior to laceration repair, and patient teaching. Ample time will be provided for question and answer sessions. Workshop fee includes suturing supplies.

NUR 5602 Hidden Trauma: Domestic Violence Assessment and Intervention (.4 CEUs)

This short course will discuss the epidemiology and provide instruction on appropriate assessment techniques, interventions, and ways in which providers can improve their institutional resources. On completing this workshop, participants will understand domestic violence epidemiology, learn appropriate assessment techniques and interventions, review legal issues, and discuss what can be done to improve institutional resources.

NUR 5603 Dermatologic Procedures in Primary Care (.6 CEUs)

From body piercing, scabics, and fish hooks to punch biopsy and cryosurgery—the advanced practice provider encounters a wide range of dermatologic issues. This day-long workshop will examine and provide an update on a number of dermatological procedures in primary care and includes a practice session for technical skill development.

NUR 5604 Clinical Skills Update for Community Health Nurses (.4 CEUs)

Shortened hospital stays have resulted in increasing technological demands on home health nurses. An excellent refresher and/or update for nurses working with unfamiliar technology in the home health setting, this program offers hands-on opportunity to explore and practice using the equipment in a laboratory setting.

NUR 5605 12 Lead ECG Interpretation (.4 CEUs)

A valuable skill for nurses, this short course will cover the basics in 12 Lead ECG Interpretation, including the differential diagnosis of major cardiac arrhythmias. Class includes electrocardio-

gram interpretation practice sessions for all participants.

NUR 5606 Science and Art of Impression: Relaxation, Imagery and Ritual for Holistic Healing (.4 CEUs)

This course is designed to take the ancient understanding of the science of impression and place it into a modern context for use in healing ourselves and our patients. This class will explore methodology of working with the external impressions of the world through the senses as a means of healing as well as developing capacity to be more aware of and active in selecting helpful and discarding harmful impressions within ourselves. The implications to a broad range of healthcare areas including immunology, mental health, wound healing, surgical outcome and health maintenance will be explored in this context.

NUR 5607 Science and Art of Breath: Ancient Practice—Modern Application (.4 CEUs)

Many traditions have used the vehicle of breath work as a means to health and well being in body, mind, emotions and spirit. Western practice has utilized breath work for childbirth for many years. More recently breath work for chronic pain, mental health issues, stress reduction, wound healing and other applications is being explored in the West with success. This class will explore the roots of understanding of breath and health from the cultures in which it was developed, and experientially apply these practices. The class will also explore more contemporary usage of these principles for application in daily life the healthcare practitioner and for our patients.

NUR 5608 Science and Art of Touch (.4 CEUs)

Healing through touch is becoming recognized with increasing legitimacy in our culture. From the employment of kangaroo care in the neonatal intensive care unit to energy healing techniques such as Reiki and Therapeutic touch for acute and chronic illness, the significance of our emotional, spiritual, and physical health maintenance needs through touch will be explored in this course. Experiential practice with therapeutic touch will be taught, and the participant will receive a certificate of completion for beginning Therapeutic Touch as well as CEU contact hours.

NUR 5609 Understanding Complementary and Alternative Medicines: Herbal Agents (.4 CEUs)
Used by early practitioners for hundreds of years, herbal agents are enjoying a "comeback" in healthcare practice. Although 60 million people currently use complementary and alternative medicines, nearly 3 out of 4 patients fail to discuss their use with their primary care providers. This course will examine a variety of herbal agents—presenting facts vs. folklore and concentrating on their therapeutic usefulness.

NUR 5610 Alzheimer's Today—Diagnosis, Treatment and Quality of Life (.4 CEUs)
A difficult diagnosis for all concerned, Alzheimer's places tremendous stress on both patient and family. This course will discuss the diagnosis, treatment, and quality of life issues surrounding the disease. Special attention will be paid to caregiver issues and coping strategies.

NUR 5611 Strategies for Infertility Management/Normalizing the Experience of Infertility in a Fertile World (.4 CEUs)
Infertility impacts 5.3 million women in the United States. Newer treatments for the disease of infertility have a higher success rate, and their economic impact is comparable to or less than older methodologies. However, social support for this clinical problem is woefully lacking. Understanding the critical factors in treatment from the emotional, financial, and physical perspective, helps to normalize the infertility experience. This course will cover the use of advanced reproductive methods for treating mainstream infertility. Additionally, fringe infertility and quasi-adoption methods will be discussed. Emphasis will be placed on the emotional impact, lack of social support and advocacy for not only the disease of infertility but also the newest methods of treatment.

NUR 5612 Wellness in the Workplace (.4 CEUs)
Workplace issues contribute to absenteeism, reorganizations, and employee morale. This seminar focuses on four important issues related to relationships between nurses and their relationships with others in the workplace. Key areas to be discussed are: (1) the ethical dilemma of caring to confront each other, (2) behav-

ioral styles and versatility, (3) relationship between family and workplace behaviors, and (4) sharing nurses' work with others through print/electronic media. This class will include interactive dialogue integrated with research/practice-based lecture.

NUR 5613 The Care and Education of the Patient of Hypertension (.4 CEUs)
Hypertension is a condition affecting up to 25% of the United States population. Upon completion of this course, the learner will be able to define the various classifications of hypertension; discuss the epidemiology/pathophysiology of the condition, and identify current treatment modalities and effective patient teaching strategies. Also covered will be methods of educating the public about hypertension.

PAYROLL ADMINISTRATION

617.373.7972 • TTY 373.2825
www.neu.edu/cont-ed/FSI.html

PAY 5262 PayTrain Payroll Administration Program (3.0 CEUs)
PayTrain is an accelerated, 30-hour course conducted over ten 3-hour classes. It is designed for those who have a working knowledge of the payroll department's function and responsibilities. This course is intended for those who want an intensive computer-based learning and training program to prepare for the CPP exam.

PAY 5273 Primary Payroll Skills (1.8 CEUs)
This class is an introduction to payroll and can be the first step toward being able to pass the Certified Payroll Professional exam. Covered during this 18-hour course will be minimum wage, overtime pay, commission, tipped employees and the laws governing these topics. The course then moves to federal withholding, the Forms W-4 and W-2, social security and Medicare taxes, Earned Income Credit, and voluntary deductions. Basic accounting procedures and how they relate to the payroll department.

PAY 5274 Essential Payroll Skills (1.8 CEUs)
This course is a sequel to Primary Payroll Skills or for participants who have an interest in acquiring an intermediate level of payroll education and want to expand their knowledge and application skills in the area of federal law and regulatory compliance. This is an effective way to study the body of knowledge covered on the CPP Certification Examination. The content of the course includes basic categories of employment, primary benefits and tax implications, reporting requirements, account classifications, journal entries and reconciliation, and internal controls and audits.

PAY 5275 Advanced Payroll Skills (1.8 CEUs)
The Advanced Payroll course is designed for individuals who have an interest in acquiring an advanced level of payroll knowledge and applications skills. The course will benefit recently promoted payroll supervisors or managers, benefits administrators, or financial officers who have new managerial responsibility in payroll or more complex federal law application requirements in benefits, taxation, systems, and management. This is also an excellent way to study the body of knowledge covered on the CPP Certification Examination. The content of the course includes more complex applications in the areas of employment categories, benefits and tax implications, penalties related to errors and non-compliance, IRS problem resolution; payroll and supporting systems and payroll management.

PAY 5276 Payroll Intensive (5.4 CEUs)
This course combines PAY 5273, PAY 5274, and PAY 5275 into one intensive course.

PROJECT MANAGEMENT

617.373.2419 • TTY 373.2825
www.neu.edu/uc

PM 5500 Project Planning, Organizing, and Control (1.4 CEUs)
This seminar offers the chance to explore the skills needed to develop and implement a realistic and effective project plan that includes the development of a scope statement, formulating a work breakdown structure, creating a project

schedule, measuring and reporting project status, and managing changes to the plan.

PM 5501 Estimation and Cost Management (1.4 CEUs)

Accurate estimation of activity duration time and resource requirements are fundamental to the creation of a realistic schedule and budget. Participants will learn how to manage the "three masters" of budget, schedule, and performance.

PM 5502 Risk Analysis and Management (1.4 CEUs)

Financial, schedule, technical, and legal risks are inherent in the project management process. Participants in this seminar will learn to understand what risk is, the sources of risk, how to evaluate it, and most importantly, how to manage it.

PM 5503 Project Procurement and Contract Management (1.4 CEUs)

In this seminar, participants explore the science of laws and regulations, estimating, bidding, and contract requirements, as well as the art of negotiation and pricing strategy.

PM 5504 Project Leadership (1.4 CEUs)

In this seminar, participants will learn how to determine project stakeholders and stakeholder management, effective techniques for developing and sustaining project teams, successful organization and team management practices, and conflict management and resolution.

PM 5505 PMP Exam Review (1.4 CEUs)

The Project Management Body of Knowledge (PMBOK) defines knowledge an individual must possess to be recognized by The Project Management Institute as a Project Management Professional (PMP). In this seminar, the eight knowledge areas that comprise the PMP certification are examined.

PARALEGAL STUDIES

617.373.7682 • TTY 373.2825

www.neu.edu/cont-ed/paralegal

Many Continuing Education courses for legal professionals are offered. Call for complete course descriptions.

PRL 5100 Paralegal Certificate Program (10.4 CEUs)

Northeastern's Paralegal Certificate Program is an intensive 12-week course

designed for applicants who want exposure to the pragmatic aspects of the paralegal profession. Participants acquire a basic understanding of the law and become thoroughly grounded in the responsibilities and duties of paralegal work. The curriculum reflects the demands of a busy general law practice and is conducted by professional paralegals and attorneys. This program does not presume any prior legal knowledge or experience.

PRL 5147 Paralegal Internship (0.0 CEUs)

This well-rounded course encompasses a challenging alternative to classroom experience by providing students with an entrance into work situations that allow them to test classroom theories, refine their career objectives, and develop positive work habits. The students must fulfill the contact hours on site and complete all paperwork, which includes keeping a daily journal, writing a final paper on the internship experience, and compiling a portfolio of completed paralegal work assignments. *Prereq. BUS 5100.*

PRL 5200 Legal Nurse Consulting (10.4 CEUs)

This intensive, 105-hour program is intended specifically for experienced nurses who need the legal skills and background to work as legal nurse consultants. Topics include the role of the legal nurse consultant, the scope of practice settings and various practice areas. Participants are taught how to conduct legal and medical research, the litigation process, how to draft litigation documents, and legal theory as it relates to legal nurse consultants. Ethics and professionalism are also covered. Medical record analysis is covered in depth including review, evaluation, identification, organization, indexing, and summarizing. Participants will work from start to finish with several hypothetical case studies beginning with the initial client interview through discovery and trial preparation.

PURCHASING

617.373.7972 • TTY 617.373.2825

www.neu.edu/cont-ed

PUR 5100 Essentials of Purchasing (1.4 CEUs)

This "how to do it" two-day seminar for new buyers and others who want to learn and use professional purchasing techniques. Topics covered include how to implement a Just-In-Time purchasing program, key tasks for the purchasing function, ways of using cost and price analysis, negotiation techniques, how to evaluate and select suppliers, use of computers in purchasing, and how to work with ISO 9000.

PUR 5101 Advanced Purchasing Strategies (1.4 CEUs)

For purchasing professionals who already know the basics and want to implement strategies that have high impact on overall purchasing performance. Topics include key steps to implementing a supplier reduction program, how to improve negotiations, how to develop an effective supplier rating program, how to use cost and price analysis, how to become a better negotiator, how to manage supplier relations, and steps to reduce the cost of quality.

PUR 5102 Legal Aspects of Purchasing (1.4 CEUs)

To protect the rights of your company in every purchasing transaction. Topics include how to avoid entering into a bad contract, methods to reduce the cost and liability of freight, selecting the best contract for different types of purchasing, key laws every buyer should know, how to handle unauthorized shipments, ways of handling defective materials, and the best ways to get your materials delivered on time.

PUR 5103 Improving Negotiation Skills (1.4 CEUs)

Topics include key ingredients of successful negotiations, ways to problem solve before the negotiations, ways to identify the do's and don'ts of negotiations, how time, information, and power can influence outcomes, and how to achieve a "win-win" outcome. This seminar is directed to purchasing managers, purchasing agents, buyers, or managers with functional responsibility for the purchase of goods and services of the company.

**PUR 5104 Improving Purchasing
Performance (1.4 CEUs)**

Designed to help develop new skills for this changing profession and to fine tune one's ability to interact with and get results from others inside and outside the purchasing environment. Topics include becoming a proactive purchasing professional, being an effective consultant to internal clients, building professional competence and confidence, becoming more productive as a buyer, and improving the overall performance of the purchasing department.

**PUR 5105 How to Purchase Services
(1.4 CEUs)**

This two-day workshop is directed at those who are currently working as buyers or purchasing agents of services. Topics include what a service supplier is, the supplier selection process, contract development, the statement of work, the cost elements in service purchases, measuring service supplier performance, and negotiating service contracts.

POLICIES AND PROCEDURES FOR DEGREE AND UNDERGRADUATE CERTIFICATE PROGRAMS

General Admissions Policy

University College has an open enrollment policy that enables students to take most courses and certificate programs simply by registering for the course. Applications for admission, entrance examinations, and College Board Examination scores are not required. Credits earned for individual courses taken at University College may be applied to a certificate or degree program.

However, students who are enrolled at University College and who decide to pursue a degree program must apply for admission to the program. Requirements include proof of high school graduation, a 2.0 q.p.a., completion of 18 q.h., and completion of the Critical Writing sequence. Special requirements apply to students entering degree programs, such as the Bachelor of Science in Business Administration, Bachelor of Science and Bachelor of Arts in Liberal Studies, and Bachelor of Science in Nursing programs. For information on the admissions process for these programs, please see pages 15, 58, 42-43.

Students must be admitted to a degree program in order to be eligible for financial aid. See pages 233-234 for information on obtaining financial aid. All international students must be admitted to a degree program in order to apply for an I-20 form. See page 216 for more information on international students. There is a separate procedure for entering certificate programs. See below.

Admission to a Certificate Program



Most certificate programs are designed to facilitate transfer into a related degree program. Additionally, a limited amount of transfer credit for introductory courses taken at another school may be applied toward certificate program requirements. The number of transfer credits permitted varies by certificate and is specified in the description for each certificate program. *Students must achieve a grade of C (2.0) or better in each course in order to receive a certificate. The American Sign Language, Deaf Studies, and American Sign Language-English Interpreting certificates require a B (3.0) cumulative average.*

To enter a certificate program, students should file a certificate petition with the Office of Academic and Student Affairs. When you have entered your last quarter of course(s) toward your certificate, you should file a Certificate Completion Form. Petitions are available from the Office of Academic and Student Affairs, 180 Ryder Hall, 617.373.2400 or TTY 617.373.2825, and at all campus locations.

Registration

If you are a new student, you will need to do your initial registration by fax, mail, or in person. Returning students may register for courses by telephoning or by mailing or faxing the registration form available in the back of the *Schedule* during the mail-in registration period or by reporting to any University College campus during the registration periods that are scheduled each quarter. It is not necessary to register at the campus where a particular course actually meets; students may register at any campus for a course scheduled at any other campus. Attendance at class, even with the instructor's permission, does not constitute registration unless the student has filled out a registration form. To ensure academic soundness, students may not register for courses after the second class meeting, except in rare cases by special permission of the instructor. Academic credit will not be awarded to students who are not properly registered. See the Academic Calendar on page 2 for a complete registration schedule.

Courses listed in this *Bulletin* are not necessarily offered each quarter. *Students may not be able to take all of the courses required for a particular program at any one campus location.* Each Fall, Winter, Spring, and Summer quarter, the list of courses being offered is printed in a University College *Schedule*. *Schedules* are distributed at all campus locations several weeks prior to registration. To request a schedule by mail, call 617.373.2400 or TTY 617.373.2825.

Applying for Admission to a Degree Program



A student who wishes to be admitted to University College as a degree candidate must follow either Option 1 or Option 2 procedures as outlined here.

Students are urged to apply for admission as soon as they are eligible. Students *must* be admitted to a degree program in order to be eligible for financial aid. The admission process must be completed before the start of the term for which financial aid is being applied. Non-immigrant international students must also be admitted to a degree program and must follow the procedures outlined on page 216, International Students. International students who are resident aliens must follow the procedures outlined on page 221, Evaluation of International Educational Credentials.

Option 1

In general, students applying for admission to a degree program must have:

- completed at least 18 quarter hours of credit, which may include transfer credit, and *must* include English courses ENG 4100 and ENG 4101 or their equivalents and ENG 4102, including the in-class writing competency examination;*
- attained a minimum quality-point average of at least 2.0 (C) at University College (i.e., successfully completed at least one U.C. course); and
- provided (or submitted) a high school transcript, diploma, or a high school equivalency certificate (GED).

In addition to the preceding requirements,

- Students who wish to apply to a Bachelor of Science in Business Administration (BSBA) degree program must also have completed 80 q.h. of credit, MTH 4110 and 4111 (Contemporary Algebra 1 and 2 or their equivalents), and one social science course.
- Students who wish to apply to the Bachelor of Science in Nursing (BSN) degree program should also note the additional admission requirements on pages 42-43.
- Students who wish to apply to the Bachelor of Arts degree program in American Sign Language-English Interpreting should review admission requirements on page 72.

Students who meet these requirements may file an application for admission in the Office of Academic and Student Affairs or at any branch campus. Applications may also be submitted by mail. Call 617.373.2400 or TTY 617.373.2825 to obtain an application. Students will be notified of their acceptance by mail.

Option 2

Students who must apply for admission but do not meet the above requirements should:

- arrange an admission interview with an academic advisor by calling 617.373.2400 or TTY 617.373.2825 (617.373.8300 Downtown; 617.373.2400 Burlington and other satellite locations);
- complete an Option 2 application for admission and bring it to the interview;
- bring an official copy of the high school transcript or GED certificate to the interview; and
- bring official copies of any college transcripts to the interview.

Interviews may be arranged at all campus locations.

Bachelor of Science in Business Administration (BSBA) candidates are not eligible for admission under Option 2. These students will be placed in associate degree programs until they have met the Option 1 requirements for the BSBA degrees.

Students who have been admitted to a degree program under Option 2 will have their transcripts reviewed after one academic year to ensure that they are making satisfactory academic progress. Satisfactory academic progress is defined as follows:

- completion of at least 18 quarter hours of University College or transfer credit. This credit *must* include English courses ENG 4100 and ENG 4101 or their equivalents, and ENG 4102 including the in-class writing competency examination and
- a minimum quality-point average of at least 2.0 (C) at University College.

The Office of Academic and Student Affairs will notify the Office of Financial Aid of those students who are not making satisfactory academic progress. Students who have not completed the above requirements within one year will revert to unadmitted status.

*Beginning Fall 1997, all degree candidates, including transfer students, must demonstrate writing proficiency by successfully completing the in-class competency examination at the end of *Critical Writing Workshop* (ENG 4102).

Course Selection

Academic advisors (see page 9) are available by appointment at all campuses to help students plan their academic programs and select courses.

Students who have earned credits from other schools are urged to have their transcripts evaluated prior to the registration period to avoid duplicating coursework completed elsewhere. Students should allow *at least four weeks from the time all transcripts have been received for processing transfer credit petitions*. During the official registration periods at all campuses, advisors are available without an appointment to answer general questions and to help students make initial course selections. Because the process of evaluating transfer credit is complex, students should not expect advisors to evaluate their petitions during advising appointments.

Additional Degree Status

Any student who has received a bachelor's degree from University College and wishes to earn a second bachelor's degree must fulfill a minimum of 45 quarter hours in residence after full completion of the first degree, at least 12 quarter hours of which must be in the new major concentration.

A student who has already received an associate's or bachelor's degree from University College and who wishes to earn a second degree at the associate's level must fulfill a minimum of 24 quarter hours in residence after full completion of the first degree, at least 6 quarter hours of which must be in the new major concentration.

In either case, **the student must complete all of the requirements in the second degree program.** The additional degree and major must be distinctly different from the previously conferred degree. This policy does not apply to students earning an associate's degree who wish to go on for a bachelor's degree. Students interested in additional degree status are urged to first meet with an academic advisor.

Academic Probation

All students are monitored at least once each academic year, usually after the end of Spring term. Students majoring in Nursing are also reviewed on a quarterly basis by the Academic Standing Committee of the College of Nursing. Students in the Radiologic Technology Program are monitored on a continuing basis. Radiologic Technology students whose grades fall below acceptable levels are subject to sanctions imposed by the Program Director and may be asked to leave the program without a probationary period. Students who have been admitted to a degree program must maintain an overall quality-point average of not less than 2.0 (C) and a 2.0 (C) average in the required major courses in order to be considered in good academic standing. Any degree student whose overall quality-point average or major course average falls below 2.0 is placed on academic probation for a one-year period. Students receive formal notification of their probation and the level of performance required to return them to good academic standing. Students on probation are encouraged to meet with an advisor at least once per term.

Students who do not raise their overall quality-point average or major concentration to 2.0 within the probationary period will have their cases referred to the University College Academic Standing Committee for review. This Committee has the power to remove students from their degree programs but allow them to continue taking courses at University College or to dismiss them from University College.

Students who have been dismissed from University College must petition the Academic Standing Committee no sooner than one year from the date of dismissal if they wish to return to University College.

Certificates Contained within Degrees

When a certificate is contained within a degree program (such as economics or graphic design), the grouping of certificate courses is treated like all other courses in terms of overall and major quality-point average, and the student receives a diploma only. However, if the student wishes to receive both a diploma and a certificate, the higher standard for certificate courses (minimum 2.0 in each certificate course except American Sign Language, Deaf Studies, and ASL-English Interpreting Certificates, which require 3.0 cumulative averages) will apply. Students must file a certificate completion petition separately in order to receive the certificate.

Changes in Requirements

The continuing development of University College requires frequent revisions. When no undue and unusual hardship is imposed on students because of these changes, students are expected to meet the requirements of the most current *Bulletin*. If a particular student finds it impossible to meet those requirements, the *Bulletin* for the year in which he or she declared a major is binding. University College makes every effort to inform students who are admitted to a degree program of changes in the curriculum.

Academic programs, course content, and rules and regulations are subject to change without notice.

Change of Major

Students wishing to change majors within University College should file a Change of Major Petition with the Office of Academic and Student Affairs, 180 Ryder Hall. Petitions are available at all campus locations or by calling 617.373.2400 or TTY 617.373.2825. Students who have received an associate's degree who are now working toward a bachelor's degree should be sure to change their majors to their new programs two weeks after the university commencement.

Course Substitutions

Students may request to replace a required course in an academic program with another comparable course. Although such requests are not encouraged, the University recognizes that students may occasionally have very good reasons for requesting such substitutions. Students must complete a Petition for Course Substitutions and submit it to the Office of Academic and Student Affairs. Petitions are available at each campus location or by calling 617.373.2400 or TTY 617.373.2825. Petitions are routinely forwarded to the appropriate program director. The program director reviews the request and notifies the student of the outcome. A copy of the completed request is kept in the student's file in the Office of Academic and Student Affairs.

Attendance

University College expects students to meet attendance requirements in all courses to qualify for credit. Attendance requirements vary, and it is the student's responsibility to ascertain what each instructor requires. Absence from regularly scheduled classes may seriously affect the student's academic standing. Consistent absence without making arrangements with the instructor or formally withdrawing from the course may result in a final grade of "F." Permission to make up work missed because of absence may be granted by the instructor on presentation of a reasonable excuse.

Auditing Policy

Students are permitted to audit courses upon submitting the usual registration forms and on paying the regular tuition fees. There is no reduction in fees for auditing. An auditor may participate in class discussion, complete papers and projects, and take tests and examinations for informal evaluation. However, regardless of the amount or quality of work completed, *academic credit will not be granted at any time for an audited course.*

The student's decision to audit a course must be communicated in writing to the Registrar's Office prior to the fourth class meeting. Exceptions to this procedure cannot be approved without authorization by the University College Associate Director of Academic and Student Affairs.

Change of Address or Name

Change of address and/or name must be reported in writing both to the Registrar's Office, 120 Hayden Hall, Northeastern University, 360 Huntington Avenue, Boston, MA 02115, and to the Office of Academic and Student Affairs, 180 Ryder Hall. Legal documentation must accompany requests for name changes.

Class Changes

University College reserves the right to cancel, divide, or combine classes when necessary. Although this policy ensures that students in most cases will not be excluded from a class because it is oversubscribed, it also means that a course may be cancelled because of inadequate enrollment. Cancellations are more likely to occur among upper-level or advanced courses than among introductory courses. Although students may register as late as the first week of class, cancellation decisions are based on pre-registration figures. *You are therefore encouraged to register in advance to increase the likelihood that the courses you want will run.* Seniors who are adversely affected by course cancellations should contact an academic advisor or their program office for help in identifying alternatives.

Credit Hours: Quarter-Hour Credit

Credit hours are assigned to a course based on the established educational standard of one credit hour for every three hours of student learning time per week over a term. Thus one hour of lecture or discussion plus two hours of individual study outside of class equals one credit.

Northeastern University operates on a quarter-hour credit system. A quarter-hour credit is the equivalent of three quarters of a semester hour. Most University College courses are assigned three quarter hours (abbreviated "q.h.") of credit and meet for two hours and ten minutes each week.

Students who would like to take courses at Northeastern and then transfer these credits to another school are urged to receive permission from an advisor at the other school prior to registering, especially since many other schools operate on a semester calendar.

Examinations

Tests are scheduled throughout each quarter at the option of the instructor and are regarded as part of the term's coursework. A final examination is held at the end of each quarter in each course unless an announcement is made to the contrary. The procedure for making up final examinations missed due to student absence may be found on page 226.

Homework

The specific work required for each course in University College is determined by the instructor. In general, University College students are expected to spend an average of six to eight hours per week outside of class on assignments for each course. Students who are absent are responsible for obtaining their homework assignments from their instructors or from other students. Homework assignments are not available from the Office of Academic and Student Affairs.

International Students

Northeastern University is authorized under Federal law to enroll *non-immigrant alien* students. International Student Applications must be filed by all non-immigrant students. Because the process of applying to University College is complex, deadlines for completed applications are well in advance of the start of each term:

<i>Deadline</i>	<i>for</i>	<i>Term Starting</i>
July 1, 1999		Sept. 1999 (Fall)
Oct. 1, 1999		Jan. 2000 (Winter)
Jan. 3, 2000		March 2000 (Spring)
March 31, 2000		June 2000 (Summer)

Students who miss the deadline for a given term will need to defer attendance to the following term. Proficiency in English is a prerequisite to admission and is determined by achieving a 550 on the TOEFL exam (213 on the computerized version of TOEFL), by an assessment interview, or by testing administered by the English Language Center. There is also an application fee of \$80.

Questions may be directed to the Office of Academic and Student Affairs, 180 Ryder Hall, 617.373.2400 (TTY 617.373.2825) or to the International Student Office, 203 Ell Building, 617.373.2310.

International students who are *resident aliens* in the U.S. must file an International Credentials Evaluation Form for admission and/or transfer credit and must provide proof of their resident alien status (green card). There is an evaluation fee of \$50 if international high school and college transcripts are involved. Questions may be directed to the Office of Academic and Student Affairs. (See page 221, Evaluation of International Educational Credentials, for further details.)

Course Load Policy

It is *recommended* that new students and/or students who are working full-time not take more than 12 quarter hours of credit per term. The *average* course load for a student working full-time is 6 q.h. per term. Students who are not working or whose work schedules allow may take up to 18 q.h. per term without special permission. Any student wishing to take more than 18 q.h. in a given term must file a course overload petition with the Office of Academic and Student Affairs *at least one week prior to the start of the term*. In no case may a student with a quality-point average under 2.0 take more than 12 q.h. per term.

Petition for Course Overload forms are available from the Office of Academic and Student Affairs, 180 Ryder Hall, 617.373.2400 or TTY 617.373.2825.

Pass/Fail Courses

Students may register for one *open elective* course per quarter on a pass/fail basis (satisfactory/unsatisfactory) and may not take more than a total of five pass/fail courses at University College. To be eligible for pass/fail status, the student must be in good academic standing (have at least a 2.0 quality-point average) and must also meet all prerequisites for the course.

To be graded on a pass/fail basis, the student must file a Pass/Fail Petition and have it signed by the Associate Director of Academic and Student Affairs. Pass/Fail Petitions are available from the Office of Academic and Student Affairs, 180 Ryder Hall, 617.373.2400 or TTY 617.373.2825. Petitions must be *received prior to the fourth class meeting*. (For five- and six-week intensive courses, petitions must be received by the second class meeting.) Please see also the section on Pass/Fail Grades, page 226.

Placement Tests

Placement tests are given to students enrolled in *Critical Writing 1* (ENG 4100), *Writing for the Professions 1* (ENG 4380), and *Technical Writing 1* (TCC 4101) during the first class session. Some students may be requested to register for *Elements of Writing* (ENG 4011), a three-quarter-hour course offering additional help in writing, or *Advanced English for International Students* (ENG 4007).

Students registering for *Accounting Principles 1* (ACC 4101), *Accounting Principles 1 & 2 Intensive* (ACC 4105), *Chemical Principles 1* (CHM 4133), *Contemporary Algebra 1* (MTH 4110), or *Contemporary Algebra 1 & 2 Combination* (MTH 4114) must take a placement test at the first class meeting. The results will determine whether the student should take *Foundations of College Mathematics* (MTH 4003) prior to taking these courses or the non-credit *College Level Mathematics Refresher Workshop*, scheduled on the first Saturday afternoon following the first week of classes. Students registering for *College Algebra* (MTH 4107) must also take a placement test at the first class meeting. Some students may be asked to register for *Technical Mathematics* (MTH 4006) to help improve their math skills. Placement tests are also given at the first class meeting of MIS 4278 C++ for C Programmers. Students may be asked to take a C Programming class to improve skills.

Prerequisites

Before registering for a course, you should read the course description in this *Bulletin* to determine whether you need to have taken a prerequisite course. In order to ensure academic success, students are strongly advised to adhere to course prerequisites. Students with questions about prerequisites should contact the program office that administers the course or speak directly to the instructor. Students must have 80 q.h. in order to register for Reserved section business courses. Students must have 130 q.h. and completed all core business courses in their major or minor to register for *Business Policy* (MGT 4450, 4451, or 4452).

Special Students

University College students who wish to take Basic College courses may, in certain instances, enroll on a term-by-term basis. These students must obtain prior approval from both the Office of the Dean of the college offering the course and University College's Office of Academic and Student Affairs, 180 Ryder Hall. Students must collect both signatures on a Special Registration Form and submit the form to the Registrar's Office. Tuition is charged at the Basic College rate.

Basic College students who wish to enroll in University College courses must obtain prior approval from the academic dean of their college.

Disciplinary Action

The University Court has the authority to warn, censure, suspend, expel, or remove from the list of degree candidates any student who, because of disruptive, threatening, or illegal conduct or poor character, is considered an unsuitable member of the College community. The University Court is convened to hear a case when a member of the University College community charges a student with a violation of the Code of Student Conduct. Complete procedures are contained in the *University College Student Handbook*, which can be obtained at all campus locations or by calling 617.373.2400 or TTY 617.373.2825.

Withdrawal Policy

Students who wish to withdraw from a course *must* complete a Course Drop Form, available at any campus location, or drop their class by using the automated telephone system (617.373.8000). Students who withdraw from a course prior to the end of the seventh week (or seventh class meeting in intensive format courses) of a term (please refer to the specific deadline in each *Schedule Guide*) will have no record of the withdrawal on their transcripts. Students may withdraw from the beginning of the eighth week to the end of the week prior to final examinations, but the withdrawal *will be* noted on their transcripts. No withdrawals will be allowed for any reason during the week in which final examinations are given. As of Fall 1997, a "W" grade (withdrawal) can only be given administratively by the Registrar's Office based on having followed the proper course withdrawal procedures outlined here. If you have not withdrawn, faculty members are obliged to assume that you are still in the course and will grade accordingly.

Academic Integrity

Students must accept the responsibility to be honest and to respect ethical standards in meeting their academic assignments and requirements. Integrity in academic life requires that students demonstrate intellectual and academic achievement independent of all assistance except that authorized by the instructor. Consequently, *all* work submitted to meet course requirements, whether it takes the form of papers, examinations, laboratory reports, computer projects, quizzes, or any other work assigned, is expected to be the student's own work produced specifically for each course.

Students who fail to meet the responsibility of academic integrity as defined here are subject to disciplinary sanctions ranging from a reduction in grade or failure in the assignment or course to dismissal from the University. Details on the Code of Student Conduct and complete disciplinary procedures are outlined in the *University College Student Handbook*.

Student Records

In accordance with the Family Educational Rights and Privacy Act of 1974, Northeastern University permits students to inspect their records whenever appropriate and to challenge specific parts of them when they feel it is necessary. Specific details of the law as it applies to Northeastern are available in the *University College Student Handbook*.

Academic Monitoring

Student grades are monitored at least once each academic year, usually after the end of Spring term. Non-degree students, undeclared majors, and unadmitted students whose quality-point averages fall below 2.0 are contacted by the Office of Academic and Student Affairs and are offered all possible assistance. These students may also be subject to academic review, probation, and dismissal from University College when such action is warranted.

Students who feel they would benefit from academic assistance are encouraged to work closely with an academic advisor. Students may make appointments by calling 617.373.2400 or TTY 617.373.2825.

Academic Standing Committee

The University College Academic Standing Committee convenes at least once each month, and more often if necessary, to consider student academic grievances and appeals related to the academic policies and procedures contained in this *Bulletin*. The Committee has the power to dismiss students who do not meet the academic standards of University College. Complete procedures are outlined in the *University College Student Handbook*. Grievance letters may be addressed to the Dean's Office, University College, 295 Ryder Hall.

Students' Rights and Responsibilities

The University subscribes to the view that all students have certain rights, freedoms and responsibilities. For these reasons, the University has adopted and published specific policies and procedures governing student rights and freedoms, general conduct, student discipline, grievance procedures, disclosure of information from student records, and University judicial procedures. Judicial and grievance procedures are related to issues of discipline and conduct, the right of students to appeal judgments of their academic performance, grievances based on the fact that a student is handicapped, and allegations of sexual harassment. All policies and procedures governing the above matters may be found in the University College *Student Handbook*. Copies are available in the Office of Academic and Student Affairs or by calling 617.373.2400 or TTY 617.373.2825. In general, copies are also available at each campus location.

Dean's List

All degree candidates who have taken a minimum of 18 quarter hours during the Fall, Winter, Spring, and Summer quarters and who have completed this coursework with a quality-point average of 3.25 or better with no "I" grades, grades below C-, and no pass/fail grades (except where there is no alternative or where required by the program) are placed on the Dean's List. These students receive certificates of commendation from the Dean of University College once per year after the Summer quarter has ended. See page 227 for information on graduation with honor.

In Absentia Status

If a student moves beyond a reasonable commuting distance from University College or its branch campuses and has completed 135 or more quarter hours of credit (at least 75 q.h. of which must have been taken at University College), the Associate Director of Academic and Student Affairs will consider a petition to allow the student to complete his or her requirements for a University College degree at another approved college. The remaining courses must be completed within two years of the date of official *in absentia* status approval. The student must submit course descriptions to the Associate Director for approval prior to taking the courses.

Status Reports

The Office of Academic and Student Affairs provides status reports for students who want to know where they stand in a particular academic program. Status Report Request forms are available at all campus locations and by calling 617.373.2400 or TTY 617.373.2825.

Students should request a status report each academic year to monitor their progress.

Status reports are issued automatically

- when issuing the first transfer credit award and
- when the student is changing majors.

Double Majors/Double Concentrations

University College offers several double majors and double concentrations, which enable students to complete all of the requirements toward two bachelor's degree programs. Students, however, will receive **ONE diploma** indicating completion of the double major. At present, double majors are available in the following Bachelor of Science degrees: Economics/Political Science; Art/Graphic Design and Visual Communication; and English/Technical Communications. Double business concentrations are also possible in B.S.B.A. Accounting/B.S.B.A. Finance, B.S.B.A. Management/B.S.B.A. MIS, and B.S.B.A. Management/B.S.B.A. Marketing. Students apply for admission to these double majors or double concentrations as they would for any other degree program.

Special Studies

Qualified students may have the opportunity to take up to six special studies. Those who meet the specifications described below may take a combination of:

- two advanced tutorials
- one field work
- three independent studies or
- three honors programs

Petitions for these studies are available in the Program Offices, located on the second floor of Ryder Hall. Petitions should be filed at least six weeks prior to the quarter in which the special study is to be taken.

Most special studies are taken under the direction of a faculty advisor, who will meet with the student at least three times during the quarter and will be available for frequent phone conferences. The language and lab tutorials will meet weekly. Students may request a specific faculty member. However, no special study may proceed without the Program Director's approval.

Special studies are not offered in all subject areas. To find out whether they are offered in your area of interest, check the course descriptions for your program in this *Bulletin*.

Before petitioning for a special study, you may wish to consult with your Program Office. In many cases, taking a full course will be of greater value to you.

Advanced Tutorial: The Advanced Tutorial is designed primarily for students with declared majors who have been unable to take a needed upper-level course in the usual format because **the course has not been available for two consecutive years**. The Advanced Tutorial is essentially a full course taken independently under the supervision of a faculty advisor who will provide a syllabus, test the student's progress, and ascribe a grade. With the exception of languages and a few labs, Advanced Tutorials are 3 q.h. credits each.

Students may take no more than two Advanced Tutorials and should have completed 87 q.h. before petitioning.

Field Work: Field Work courses are designed to enhance career development by allowing students to earn credit for the application of their academic studies to experiences in the workplace. Field Work courses are offered for qualified Business students and certain Liberal Arts majors. Please refer to individual course descriptions for details, including prerequisites.

A student must have a 3.0 cumulative average to be eligible for Field Work and may take only one quarter of Field Work for 6 q.h. credits. Each student shall make his or her own arrangements for doing Field Work at an approved work site and shall spend a minimum of fifteen hours per week at the site, whether on a paid or volunteer basis.

Each student shall meet with a departmental Field Work advisor at least five times per quarter in order to plan the project, monitor the student's progress, and present and discuss a final written report. The student's grade shall be dependent upon the quality of the experience as demonstrated by reports, work products, and other documentation and upon discussions between the University College faculty advisor and the work site supervisor.

Independent Study: The Independent Study is an opportunity for *degree students who have completed 96 q.h. and maintained a 3.0 q.p.a.* to undertake special research, reading, or experimental study projects in areas related to their major. In addition to filing a petition, interested students should submit a study proposal for the Program Director's approval. The proposal should include a detailed outline of the objectives and plan of study and should be accompanied by a supporting statement from the faculty member under whose direction the study will take place. *Students may take up to three Independent Studies at 3 q.h. each.* Usually these courses would count toward major elective requirements.

Honors Program: The Honors Program is similar to the Independent Study, with two exceptions: the *student must have a 3.5 q.p.a.* to be eligible, and submit a more in-depth work product to earn the additional 1 q.h. credit.

Students may take up to three Honors Courses at 4 q.h. each. Usually these courses would count toward major elective requirements.

Please Note: Students may not take more than three of either Independent Studies or Honors courses.

POLICIES AND PROCEDURES FOR TRANSFERRING CREDIT

Transfer Credit Policy

Students may transfer credit from accredited institutions of higher education when courses completed are applicable to the student's program in University College. The minimum course grade acceptable for transfer credit is C, or 2.0 on a four-point scale. Regardless of the source (AP, APL, CLEP, DANTES, Regents College Examination (formerly PEP), non-collegiate instruction, coursework at other schools), the total amount of transfer credit that may be awarded may not exceed 128 quarter hours. Courses for which transfer credit has been awarded may not be repeated at University College without a reduction in the transfer credit award. An accredited institution of higher education is an institution having recognition and membership in one of the six regional accrediting associations recognized by the Council on Post-Secondary Accreditation.

Validation of Knowledge in Nursing

The College of Nursing endeavors to assess the clinical knowledge and skill of LPN-BSN and RN-BSN students in a variety of ways. In their first nursing course, students prepare a portfolio for assessment of prior learning in nursing practice in relation to the expected outcomes of the baccalaureate nursing program. At the conclusion of this assessment, coupled with the review of previous nursing education, qualifying students will be granted advanced placement credit of 50 quarter hours for LPN-BSN students and 96 quarter hours for RN-BSN students. Other avenues of advanced placement are open to the RN-BSN student consistent with regular University College transfer credit and residence policies.

Transfer Credit Procedure

Students who would like to obtain an evaluation of credits earned from another institution must file a Transfer Credit Petition with the Office of Academic and Student Affairs. The student must then write to the registrar of the institution previously attended and request that an official transcript (one bearing that institution's seal) be forwarded to the Office of Academic and Student Affairs, University College, 180 Ryder Hall, Northeastern University, 360 Huntington Avenue, Boston, MA 02115.

Upon receipt of official transcripts, the Office of Academic and Student Affairs issues an evaluation of all credits as they apply to the student's program in University College. **Students should allow at least four weeks for processing transfer credit petitions from the point when all official transcripts and the Transfer Credit Petition have been received.**

Since the process of evaluating transfer credit is complex, students should not expect evaluations of their transcripts during advising appointments. Official awarding of credit is recorded on the student's University College transcript when admission to a degree program is approved. Students who wish to be admitted to a degree program may indicate this on the transfer credit petition and should attach proof of high school graduation (high school transcript, copy of diploma or GED certificate). Please see page 213 for admissions requirements.

Validation of Required Upper-Level Business Courses for Transfer Credit

It may be necessary for students entering the Bachelor of Science in Business Administration (BSBA) degree program to validate required upper-level business courses that they have taken outside the framework of the program.

The Bachelor of Science in Business Administration degree programs offered by University College conform to all standards established by the American Assembly of Collegiate Schools of Business (AACSB). AACSB has been recognized by the Council for Post-Secondary Accreditation and by the United States Office of Education as the sole accrediting organization for university bachelor's and master's degree programs in business administration.

Validation is the set of procedures that tests whether an upper-level course completed in the lower division of a bachelor's degree program should be accepted for transfer credit in the upper

division of a bachelor's degree program recognized and approved by the AACSB.

In general, students are able to validate previously earned course credits by taking a sequential course, a department-approved examination, or a CLEP (College Level Examination Program) or Regents College (formerly PEP) examination.

For more information on course validation, see page 16. Students should talk with a University College academic advisor for information about the validation of upper-level business courses for transfer credit.

Evaluation of International Educational Credentials

United States citizens and international students with Resident Alien status who have international high school or college credentials must file an International Educational Credentials Form and pay a \$50 evaluation fee. An evaluation for purposes of admission and/or transfer credit is issued by the Office of Academic and Student Affairs. Requirements include completion of an interview and receipt of the completed form, official copies of all transcripts and translations into English, and a check or bank draft for \$50 payable to Northeastern University. The official assessment of international educational credentials is made in accordance with current standards for awarding transfer credit at University College or as recommended by the Center for International Higher Education Documentation. **Students should allow 6 weeks for processing after all the credentials have been submitted.**

International students with non-immigrant status must file an International Student Application (see page 216, International Students) and will have any transfer credit evaluated as part of that process.

Course(s) at Another College or University

Students already enrolled at University College who want to complete one or more courses at another institution may file a Prior Approval for Transfer Credit form to ascertain whether the course they wish to take is acceptable and equivalent to the University College course. A course description should be attached to the petition. Students may take courses elsewhere without prior approval but do so at their own risk, as the course may not transfer into University College. There is a total limit of 128 q.h. of transfer credit from all sources. **Also, the senior residency requirement stipulates that students must take their last 24 q.h. for an AS or last 45 q.h. for the BA, BS, or BSBA degree at University College.** (See page 227.)

Credit by Examination

University College awards credit by examination, provided the examination does not duplicate previously earned academic credit. Credit is granted for successful completion of examinations currently available through the Advanced Placement (AP), College Level Examination Program (CLEP) and the DANTES Examination Program of the Educational Testing Service, and through the Regents College Examination Program (formerly PEP). These programs have been designed to help students obtain college-level credit for knowledge acquired through non-traditional means, such as on-the-job training, educational television, or correspondence, extension, or independent study. The passing score for University College programs is 500 on general examinations and 50 on subject examinations. This score is established by University College and is independent of the American Council on Education recommendations. Information about these programs is available from the Office of Academic and Student Affairs at University College and from the Northeastern University Counseling Center.

Modern Language Proficiency Examination

Students may be eligible to receive a maximum of 12 q.h. of credit for proficiency in a modern language that is part of the University College curriculum. Examinations are currently offered in French, Spanish, German, Italian, Russian, and American Sign Language. Students should contact the Liberal Arts Program office, 617.373.2416, TTY 617.373.4126, for more information or an application form.

Credit for Extra-Institutional Learning

Extra-institutional learning is learning that takes place outside the sponsorship of legally authorized and accredited post-secondary educational institutions. The term applies to learning acquired from formal courses sponsored by associations, governments, business, and industry.

In awarding credit for extra-institutional learning, University College uses the *National Guide to Educational Credit for Training Programs* and the *Guide to the Evaluation of Educational Experiences in the Armed Services*, both published by the American Council on Education and College Credit Recommendations: *The Directory of the National Program on Non-Collegiate Sponsored Instruction*, published by the New York Board of Regents.

Students applying for credit for extra-institutional learning must submit a Transfer Credit Petition and provide official credentials from the sponsoring non-educational organization to the Office of Academic and Student Affairs. The credit may be applied toward degree requirements at University College if recommended in the *National Guide* or the *Directory*, provided credit is not otherwise obtainable through the CLEP, Regents College (formerly PEP), or DANTES examinations (see Credit by Examination, previous column).

Assessment of Prior Learning (APL)

University College students may obtain up to 18 q.h. of APL credit in specified academic disciplines for knowledge gained through prior learning experiences, whether work-related or personal.

Specifically, students may be eligible for APL credit if they have accrued a foundation of knowledge and skills equivalent to the content of courses in the following areas:

- liberal arts (ART, CMN, ECN, ENG, HST, JRN, MUS, PHL, POL, PSY, SOA, SOC, TCC, THE);
- health professions and sciences (BIO, CHM, HIA, HMG, HSC, MLS);
- business (MIS, RE, and TRN *only*); and
- criminal justice (CJ).

The primary method for documenting prior learning is through the assessment of a student portfolio, although in some instances an examination will also be required.

The student must submit an Application for Assessment of Prior Learning, along with a non-refundable \$75 application fee made payable to Northeastern University. The application fee covers assessment and processing costs and is not tied to the granting of credit. Applications are available at 180 Ryder Hall, at any satellite location, or by calling 617.373.2400 or TTY 617.373.2825. Applications should be returned to the Associate Director of Academic and Student Affairs, 180 Ryder Hall.

The application portfolio should include a written narrative, accompanied by documentation, to support the claim for prior learning credit for one or more courses. Assistance in portfolio planning is available from academic advisors in the Office of Academic and Student Affairs. Appointments for this purpose can be made by calling 617.373.2400 or TTY 617.373.2825. In order to prepare documentation, students may want to request the *Guide to Portfolio Development for the APL Program* from the Office of Academic and Student Affairs and review course

syllabi available from the appropriate Program Office. Documentation may include such evidence of accomplishment as published materials, writing samples, or copies of artistic work. Whenever possible, students should link prior learning to University College courses. However, when the appropriate course is critical to the academic soundness of a program, the student may be required to take the course but may, in addition, receive APL credit as an elective credit in the related subject area.

Applications will be forwarded to the appropriate Program Office where faculty, consultants, and program office staff will review them. Students will be notified if further documentation or an examination is necessary. Decisions on the applications will be forwarded to the Associate Director of Academic and Student Affairs. Please allow *at least two to three months* for processing. Students will be notified in writing of the outcome. Any credit awarded will appear as transfer credit on the transcript.

Students will be permitted to enter the APL program only after all traditional sources of transfer credit have been fully utilized. Students will not receive credit for courses that normally would not transfer to University College. If a course has a CLEP, Regents College (formerly PEP), DANTES, or challenge examination available, students will be required to take the exam. Credits earned through the APL program may be applied to certificate programs as transfer credit, within the limit designated for the certificate.

Students are encouraged to apply for APL credit as early as possible in their program. All previous college credits must be transferred and a status report completed by the Office of Academic and Student Affairs before an APL application can be submitted. **Portfolio evaluations take approximately *two to three months* to process and must be completed six months prior to graduation.**

Any student wishing to pursue APL credit should contact an advisor in the Office of Academic and Student Affairs, 617.373.2400 or TTY 617.373.2825, to begin the application procedure.

POLICIES AND PROCEDURES GRADUATE CERTIFICATE PROGRAMS

University College offers three graduate-level certificate programs designed around leading-edge curricula enabling students to immediately apply their studies to workplace issues:

- Human Resources Management p. 80
- Nonprofit Management p. 82
- Strategic Internet Management p. 89

These programs are designed specifically to meet the complex scheduling needs of adult students. In this fast-paced world, if you need to upgrade your skills, you want to do it quickly. You will be able to complete an entire program in one year (three terms) if you take two courses each term. You may proceed at a slower pace if desired. Students are encouraged to begin these programs in the fall, although starting at other points in the academic year may be possible, depending on your background.

Admission Requirements

The University College graduate certificate programs are designed for working professionals primarily at the mid-career level who already have relevant work experience. Applicants to the program must hold a bachelor's degree from a regionally accredited college or university, and official transcripts must be provided as part of the application process. Generally, applicants will have at least a 2.7 q.p.a. in their undergraduate work. Applicants will usually have some work experience in human resources, nonprofit organizations, or management for the three programs, respectively, and must attach a current resume to the application. Applicants are also required to provide a written statement outlining their goals for and expectations of the program and must attach this to the application.

Application Procedures

University College will accept applications on a rolling basis throughout the year, although students normally begin the programs in the fall or winter. Applications are available by calling the Academic Programs Office at 617.373.2425, TTY 617.373.2825. Applications are due approximately one month prior to the start of each term, (late August, early December, late February, and early May). Northeastern University operates on the quarter system, with terms beginning in late September, early January, late March, and early June. Upon receipt of the completed application, the Committee on Admission will review your materials. You should expect to receive notification no later than two weeks prior to the beginning of the term.

It is possible to apply for special student status, which would allow an individual to take one certificate course prior to being accepted into the program. Students with questions about this option should call 617.373.2425 and must file a petition with the Office of Academic and Student Affairs in 180 Ryder Hall.

A special note for international students: International applicants must include a declaration and certification of finances form and TOEFL scores of 580 or better or have earned an undergraduate degree in the U.S. For U.S. citizens or international students registered in the U.S. as resident aliens who have international educational credentials that need evaluation for admission, please call 617.373.2400 or TTY 617.373.2825 for information on this and other requirements and processing deadlines.

Tuition and Fees

There is a one-time application fee of \$25. Checks should be made payable to Northeastern University and should accompany the application form.

Tuition is billed at a rate of \$350 per quarter hour. There is a one-time \$10 registration fee for first-time students. Students also pay a \$5 per term graduate activities fee. Please do not enclose payment for courses with your application materials. Once accepted into the program, you will receive information on how to register for courses. For students who have international credentials that need evaluation, there is a \$50 processing fee.

For credit policy, see page 230.

Academic Advising

Students in graduate certificate programs are eligible to make use of University support services, such as Career Services. University College also has academic advisors available to answer your questions. Call 617.373.2400 or TTY 617.373.2825.

Academic Policies

These certificate programs are designed as free-standing programs. Some master's degree programs at Northeastern University will consider transfer of these courses on a case-by-case basis. Other colleges and universities may recognize these courses for transfer, but these decisions are made independently by the receiving institution.

A cumulative q.p.a. of 3.000 will be required in order for a student to be awarded the certificate.

The equivalent of one course taken in another graduate program (grade of 3.0 or better) may be transferred into a certificate program.

POLICIES AND PROCEDURES FOR NON-CREDIT CERTIFICATE PROGRAMS

Admissions

There is an open enrollment policy for all non-credit certificate programs. However, because many of our courses assume a certain level of knowledge or experience with the subject matter, we suggest that you carefully review the prerequisite recommendations for each course.

Continuing Education Units

Continuing Education Units (CEUs) are nationally recognized measurements of participation in a qualified continuing education program. One CEU is awarded for every 10 contact hours of such participation. A permanent university record is maintained by the Registrar's Office. Please refer to the section on transcripts (p. 225) for information on how to obtain a transcript.

Certificate Completion

When you complete the necessary courses for a Certificate Program, you should complete and submit a Certificate Program Petition. To obtain this form, call the program office telephone number listed on this page.

Grading Policy

Participants are graded on either a pass/fail or letter-grade basis. The letter-grade option requires an examination, project or paper, as determined by the course instructor. Certificate of Professional Achievement candidates must earn a grade of B- or better in each course.

Academic Credit in State-of-the-Art Program

Participants wishing to continue their education by earning an associate's or baccalaureate degree may be able to apply some coursework from State-of-the-Art program to earn academic credit in the Lowell Institute School at Northeastern (School of Engineering Technology). For further information, call 617.373.2500.

In some cases, Continuing Education certificates may be transferred in as electives to University College programs through the Assessment of Prior Learning (APL) process. Please contact the Office of Academic and Student Affairs at 617.373.2400 for further information.

Registration

Participants may enroll in one or more courses or in a Certificate of Professional Achievement by phone, fax, mail, in-person, or for some programs online: www.neu.edu/cont-ed/. To phone or fax a registration, refer to appropriate program number listed at right. Registration forms, registration dates, and instructions are included in individual schedules.

Tuition

Tuition for Continuing Education courses and programs is on a per course/per program basis. You must refer to each program's schedule for exact cost amounts, or check the Web site. If you need a schedule, call the program office at the number listed below.

For Tuition Refund and Credit Policy, please see page 230.

Payment

Please do not send your payment with your registration. The Bursar will bill you later. All checks or purchase orders should be mailed directly to: Bursar, Northeastern University, 254 Richards Hall, 360 Huntington Avenue, Boston, MA 02115. You may call the Bursar at 617.373.2319 or 1.800.937.4067 outside of the 617-area code to pay for your course with American Express, Discover Card, Visa, or MasterCard. If you have not received a bill, call the Bursar's Office at 617.373.2270.

Program Office Telephone Information

For State-of-the-Art, Building Design and Management, Environmental and FE/PE, call 781.320.8052 or fax 781.320.8012.

For Paralegal, Financial Services Institute, or Purchasing Seminars, call 617.373.7972 or fax 617.373.2325.

For Business Performance Series, call 617.373.2418 or fax 617.373.2325.

For Nursing Professional Advancement, call 617.373.2818 or fax 617.373.2325.

For Criminal Justice or Public History, call 617.373.2416 or fax 617.373.2325.

POLICIES AND PROCEDURES FOR GRADING

Grading System

A student's work in each course is evaluated by the instructor, who awards a letter grade at the end of the quarter. This grade is officially recorded by the Registrar's Office. The grades and symbols used are given below, together with the numerical equivalents used for computing quality-point averages:

A	(4.000)
A-	(3.667)
B+	(3.333)
B	(3.000)
B-	(2.667)
C+	(2.333)
C	(2.000)
C-	(1.667)
D+	(1.333)
D	(1.000)
D-	(.667)
F	(0)
I	Incomplete (no credit)
IP	In Progress (this grading option is to be used only for an entire course, per Program Office instructions to faculty)
L	Audit (no credit)
NE	Not enrolled/did not attend
S	Satisfactory (pass/fail grade)
U	Unsatisfactory (pass/fail grade)
W	Withdrawn after date of record†
X	Incomplete (pass/fail grade)
*	Grade not received

†Note: As of Fall 1997, a "W" grade (for withdrawal) can be given by the Registrar's Office only after a student has followed the correct procedure for course withdrawal.

Change of Grade Policy

The period for clearing any grade (including "I" grades) is restricted to one calendar year from the end of the quarter in which the course was originally taken. Thus any outstanding tests should be taken, and papers submitted, at least three weeks prior to the deadline. "I" grades outstanding for twelve months or longer shall remain permanently on all records. Requests for exceptions to this policy must be made in writing to the University College Academic Standing Committee, 180 Ryder Hall. Call 617.373.2400 (TTY 617.373.2825) if you are unsure whom to contact.

Grade Reports and Transcripts

All efforts are made to mail grades prior to the beginning of the following quarter. A supplementary grade report is issued when a missing grade or a grade change is received. Grade reports of degree candidates indicate both their quarterly quality-point average and their cumulative quality-point average. Problems with grades not received (*) or grade changes that have not been posted on transcripts should be addressed to the Program Office that administers the course.

Northeastern University requires a written release before a transcript can be mailed. Requests must be made in-person or by mail. Fax, phone and e-mail requests will not be accepted. When mailing your request for transcripts, you must include the following information: name, current mailing address, date of birth, social security or NU ID number, college/programs attended, year(s) attended, degree(s) received, number of copies requested, complete mailing address where tran-

script is to be sent, and a check made payable to Northeastern University for the total cost of the transcripts. Official transcripts are \$2.00 each for the first five, and \$.50 each thereafter. Written requests should be sent to: Northeastern University, Attn: Transcript Office, 117 HA, 360 Huntington Avenue, Boston, MA 02115-5096.

Requests made in-person must be accompanied by a valid photo ID and a receipt for payment from the Cashier's Office at 248 Richards Hall. Current students may obtain an unofficial copy of their transcript from the student information kiosks. Former students may obtain an unofficial copy of their transcript *in person only* from the Transcript Office at 117 Hayden Hall during office hours. If you have questions regarding transcripts, please contact the Transcript Office at 617.373.2302.

Incomplete ("I") Grades

The "I" grade, or incomplete, may be given only when the student fails to complete a single key requirement of a course, such as a term paper or a final exam, but has been in regular attendance. An instructor may decide that a student has done so poorly in the course that even a perfect grade in a make-up final examination could not raise the grade from "F." In this case "F" is the proper grade, regardless of the missed component of the course. June seniors cannot take incompletes in Spring courses and expect to graduate in June.

All deficiencies must be made up in the manner prescribed by the instructor **no later than one year following the recording of the "I" grade**. Students requesting an exception to this policy must petition the University College Academic Standing Committee, 180 Ryder Hall. To remove an "I" grade, the instructor

must file a change of grade form with the program office. A student who elects to make up an "I" grade by taking the same course over again will be given a new grade and will be billed accordingly. The original "I" grade will remain on the student's record with a "repeat" designation.

Missed Final Examinations

Students who miss a final examination are given a grade of "I" (incomplete) unless the student has done so poorly in the course that even a perfect grade on a make-up final could not raise the grade from "F," in which case an "F" shall be given as the proper grade. Students do not automatically have the right to make up a missed final examination. Students must petition for this privilege and pay a fee of \$50 for each make-up examination. Petitions are available at each campus location or by calling 617.373.2425. Students are notified whether or not their petitions have been approved prior to the date of the make-up examination.

Students who make up a missed final examination will have the appropriate letter or pass/fail grade substituted for the "I" grade on their transcripts. Please see previous section for more information about "I" grades.

Satisfactory/Unsatisfactory Grades (Pass/Fail)

Satisfactory completion of work in all courses taken on a satisfactory/unsatisfactory basis is designated on the transcript by the letter "S." Unsatisfactory work is designated on the transcript by the letter "U." Any unsatisfactory grade must be handled according to the existing policy of University College but may never be cleared by enrolling in the same course on the basis of the satisfactory/unsatisfactory system of grading.

An incomplete in a course taken on a satisfactory/unsatisfactory basis is designated by the letter "X" on the transcript and is treated according to the normal procedure for grades of incomplete. See also Pass/Fail Courses; page 216.

Quality-Point Average

To obtain the quality-point average, the numerical equivalent of each grade received is multiplied by the credit hours earned, the quality points are added together, and the total quality points are divided by the student's total quarter hours. An example follows:

Grade Achieved	Numerical Equivalent	Credit Hours	Quality Points
A	4.000	3	12.0
B-	2.667	3	8.0
C	2.000	6	12.0
F	0.000	<u>3</u>	<u>0.0</u>
		(15)	(32.0) TOTALS

The quality-point average is equal to the total quality points (in this case, 32.0) divided by the total credit hours (15), which comes to an average of 2.13.

Satisfactory/unsatisfactory grades (S, U, and X), incompletes (I), and audits (L) are not included in the quality-point average. Similarly, transfer credits are not included in quality-point averages. However, the total earned hours appearing on the student's transcript include both transfer credits and "S" grades. Transfer credits appear only if a student has been formally admitted to a degree program.

A cumulative quality-point average below 2.0 is unacceptable and does not allow a student to continue in University College or to receive a degree from Northeastern University. The "F" grade is a failure and requires repetition of the course in its entirety. University College also has a requirement that the q.p.a. in the major concentration courses must be 2.0 or better.

Repeating a Course

"F" Grades

Students who receive an "F" in a required course must repeat the course at full tuition rate. The original course and grade will remain on the record, but "repeat" will be noted next to it and the new, not the old, grade will be computed into the q.p.a.

Improving Q.P.A.

Students may repeat any course to improve their grade. The original course and grade will remain on the record, but "repeat" will be noted next to it. In all cases it is the **most recently received grade** that will be counted in the q.p.a., whether it is higher or lower than the original grade. There is no reduction in tuition fees for repeated courses.

Duplication of Courses

Sometimes students inadvertently repeat a course. Students will not receive credit twice for the same course; therefore, students are advised to be careful when selecting courses, as course titles and/or numbers sometimes change. One way for students to ensure that coursework will not be duplicated, particularly if courses were taken under the old numbering system, is to petition for an updated status report.

POLICIES AND PROCEDURES FOR GRADUATION

Residence Requirement

Every candidate for the bachelor's or associate's degree must fulfill the minimum residence requirement, which is defined as the satisfactory completion of at least 45 quarter hours of coursework for the bachelor's degree or 24 quarter hours of coursework for the associate's degree, in University College **immediately preceding graduation**. At least 12 of the 45 quarter hours, or 6 of the 24, must be in the candidate's major field of study.

Because of this residence requirement, students may not take courses at any other institution during their senior year for the purpose of transferring credit.

Students whose enrollment in a degree program is interrupted for a period of one year or more will be reinstated in that program or a comparable program at the time of re-entry into University College.

See the section on Additional Degree Status (page 214) for the residence requirement if pursuing a second degree.

Diversity Requirement

Beginning with students admitted to degree programs in July 1998, all bachelor's degree students will fulfill the Northeastern University diversity requirement. The requirement varies from program to program but generally can be fulfilled by completing a required course or series of courses in the program. In some cases, students will be asked to choose one from among a handful of diversity-related courses. Specific requirements are noted on each degree curriculum page.

Graduation Requirements

Except for certain health professions programs, the requirement for graduation from University College is 174 quarter hours for a bachelor's degree and 87 quarter hours for an associate's degree, with attainment of an overall quality-point average of 2.0 (C). Students who have transferred in a substantial amount of elective credit may have more than 174 q.h. or 87 q.h. upon completion of their programs. In addition, students must have a 2.0 average in the required major courses. Bachelor of Science in Business Administration degree candidates must also meet all validation requirements. Although the credits allowed for acceptable work completed elsewhere by transfer students count toward fulfillment of quantitative graduation requirements, neither the credits nor the grades earned in such courses are included in the quality-point computations for graduation. Course requirements for each degree are outlined in this *Bulletin*.

Graduation with Honor

Graduation with honor is reserved for bachelor's degree candidates who have completed a **minimum of 72 quarter hours** of work at University College and who have demonstrated distinctly superior academic achievement as evidenced by the following quality-point averages:

Graduation with Honor (<i>cum laude</i>)	3.25 to 3.49
Graduation with High Honor (<i>magna cum laude</i>)	3.50 to 3.74
Graduation with Highest Honor (<i>summa cum laude</i>)	3.75 to 4.00

Transfer credit is not considered in determining honors.

Credit by Examination During the Senior Year

CLEP, Regents College (formerly PEP), or DANTES examinations (see page 221) may be taken by students during their final year of study, provided they have met the 45 or 24 quarter-hour residence requirement for graduation described above. Because of the time it takes for CLEP, Regents College (formerly PEP), and DANTES examinations to be graded and returned to the University, students requesting June graduation must take their CLEP, Regents College (formerly PEP), or DANTES examinations no later than the Winter quarter of their senior year, and students requesting September commencement must take their examinations no later than the Spring quarter of their senior year.

Academic Audit of Seniors

The Office of Academic and Student Affairs conducts an academic audit of all seniors approximately one month prior to graduation. During this audit, academic problems, such as incompletes, missing grades, missing courses, or validation problems, are noted. Every effort is made to relay this information to the student through mail and telephone contact. If these problems remain unresolved, seniors are notified by certified mail that they have failed to qualify for their degree.

Senior Status Procedure

Each student who intends to graduate in either an Associate's or a Bachelor's Degree program during the current academic year must notify the Office of Academic and Student Affairs of his or her intention to graduate by filing for a Senior Status Report. Commencement is held twice a year, in June and September.

Senior Status Reports are issued to assist students with selecting the courses they need to complete their program requirements. Seniors are encouraged to request their Senior Status Reports during the summer prior to the academic year in which they plan to graduate. Petition forms are available at each campus location or by calling 617.373.2400 or TTY 617.373.2825. At this time, seniors are also encouraged to clear up missing grades, incompletes, transfer credit, admissions, or other problems.

Once a Senior Status Report has been completed, the Office of Academic and Student Affairs mails a Commencement Data Card on a rolling basis six months prior to Commencement for June graduates and three months prior to Commencement for September graduates. The card *must* be returned by the date specified to be guaranteed inclusion on the official graduation list.

Commencement Ceremony

Information concerning commencement is mailed to all seniors who have returned a Commencement Data Card (see Senior Status, above) during the Spring term, for June graduation, or the Summer term, for September graduation.

Attendance at Commencement for all University College degree candidates is optional. Students who do not attend Commencement should receive their diplomas by mail approximately six to eight weeks after the ceremony.

Students must have cleared all academic, financial, and/or disciplinary deficiencies in order to graduate. Students who have questions about the commencement ceremony should direct them to the Commencement Office, 617.373.3639.

TUITION AND FEES FOR CREDIT COURSES

Tuition

Tuition for most undergraduate credit courses is \$192 per quarter hour of credit. Charges for registration and tuition for special courses are at the rate specified for each course, with the exception of theatre and nontutorial courses. There is no reduction in fees for auditing courses. Tuition for graduate courses is \$350 per quarter hour of credit.

All charges are due prior to the beginning of each quarter, unless other arrangements have been made with the Bursar's Office. The following are accepted methods of payment:

- Check or money order in U.S. dollars made payable to Northeastern University. Payment should be mailed with the top portion of your invoice.
- MasterCard, Visa, Discover, and American Express payments may be made by calling our 24-hour automated charge line (1.617.373.2319 or outside the 617 area code, 1.800.937.4067).
- Enrollment to one of our Payment Plan Options.
- Funds may be wired directly to the university's bank for deposit to a student's account. Funds should be wired to:

ABA #: 011-000-138
Account #: 0500771431
Address: Fleet Bank USA
75 State Street
Boston, MA 02109

Attn: Ginger Stolzenthaler
617.346.1647

Reference: Northeastern University
Attn: Your Name, Phone # and ID #

Students are responsible for the prompt payment of all bills. If a bill has not been received by the first week of the quarter, please go to the Bursar's Office (254 Richards Hall), where a bill will be created for you.

Any discrepancies on your bill should be brought to the attention of the Bursar's Office. If there is a billing problem, pay the undisputed portion of the bill to avoid any additional late fees.

Tuition for Courses in Other Northeastern Departments or Colleges

University College students assigned to courses in other departments or colleges of the University are charged the tuition rate effective in the departments or colleges in which they are enrolled.

Initial Registration Fee

A nonrefundable \$10 registration fee for first-time University College students is billed along with tuition and applicable fees.

Financial Aid/ Anticipated Funds

Approved financial aid is applied directly to a student's account. The entry will appear as a credit on the billing statement and will reduce the current term balance due. Any anticipated funds appearing on the statement of account will reduce the current term's balance but may require further action on the part of the student. If anticipated funds are not reflected on the statement of the account, we recommend that the student contact the sources of these funds to ensure that any necessary information is received. This would then allow any funds that have been held up to be disbursed to your student account.

CollegeCard

Northeastern is pleased to announce a new payment option that is now available to all students, regardless of their enrollment status or financial aid eligibility.

CollegeCard is a revolving line of credit that works just like a credit card but was designed specifically to pay educational expenses. The interest rate is generally lower than market rate credit cards (currently 13.2%), and no interest will accrue if the balance is paid in full by the due date.

Northeastern students may apply on their own or with a co-borrower, depending on their financial situation. Approval will be based on income and past credit history.

For more information, or to receive an application, please call *CollegeCard* at 1.800.862.8240 or visit the Web site: www.sssc.com.

Three Payment Option Plan

All Part-Time Programs and Graduate Schools

Northeastern University offers the Three Payment Option Plan, beginning each quarter. To participate, applications and the initial required payment must be received by the Bursar's Office no later than the Saturday of the first week of the quarter. The application is enclosed with the first invoice, if the student pre-registers for courses. Students who do not pre-register for courses must contact the Bursar's Office directly before the application and initial payment deadline. Once the student is activated on this plan, payment vouchers are mailed to the student for the balance of the contract amount. There is a fee associated with this option, as well as late charges if the student fails to make payment at specific due dates.

Information regarding this plan may be obtained at the Bursar's Office. Call 617.373.2270 or TTY 617.373.3881.

Tuition Reimbursement

Many companies reimburse the student/employee upon successful completion of courses. In these situations the student is responsible for the payment of the bill at the beginning of the quarter or may select to use the Three Payment Option Plan. **Tuition may not be left unpaid pending reimbursement by an employer.**

Tuition Paid for by Employers

The student must provide the Bursar's Office with a purchase order or a statement from an officer of the company certifying that the company will pay the University directly. If there are stipulations associated with the payment agreement, such as a minimum grade level, then the student must either pay the University directly or enroll in the Three Payment Option Plan.

Late Fees and Other Charges

A late-payment fee will be assessed to all accounts for failure to make payment in accordance with the prescribed regulations. Any account that goes into default may be charged collection costs and attorney's fees as incurred by the University and may be subject to monthly interest charges.

Billing Rights Summary

If an entry on your bill is incorrect or you need more information about a transaction on your bill, write us at Northeastern University, Office of the Bursar, 254 Richards Hall, 360 Huntington Avenue, Boston, MA 02115-5096 within 30 days. You can telephone us, but doing so will not preserve your rights.

In your letter please include the following information:

- A. Your name and Northeastern student account number.
- B. The dollar amount or date of the suspected error.
- C. Describe the error and explain, if possible, why you believe there is an error.

If you need more information, describe the item about which you are unsure. You do not have to pay any disputed amount, but you are still obligated to pay the undisputed amount by the due date.

Delinquent Balances

In cases of student default on tuition payments, the student is liable for the outstanding tuition, as well as all reasonable collection costs and any legal fees incurred by the University during the collection process.

Transcripts and other academic records will not be released until all financial obligations to the University have been met.

Veterans' Benefits

Any veteran covered by Public Law 89-358 should report to 120 Hayden Hall to fill out the proper enrollment forms.

Credit Policy

Tuition credits are granted for withdrawals from the University through the first four weeks of a quarter only when specific conditions are met. Credits are granted based on the date that the official withdrawal was processed at the Registrar's Office. **NON-ATTENDANCE DOES NOT CONSTITUTE OFFICIAL WITHDRAWAL.** Requests for refunds must be made to the Office of the Bursar.

Official Withdrawal Filed Within	Percentage of Tuition Credit
First week of the quarter	100%
Second week of the quarter	75%
Third week of the quarter	50%
Fourth week of the quarter	25%
Fifth week of the quarter	0%

Payment option and credit policies vary on some courses (4-, 5-, 6-week intensives, workshops, special sequence courses) and special programs. If you are unsure about a course you're taking, contact the Bursar's Office.

Low Rate for Intensives

University College offers a selection of six-quarter-hour courses for undergraduate credit. Intensives running on Friday evenings and Saturdays will be offered at a special reduced tuition rate of \$952 (\$200 less than the normal tuition). Intensives running Mondays through Thursdays (and Fridays during the day) will be offered at the special reduced rate of \$1,052 (\$100 less than the normal tuition). Fall, Winter, and Spring 3 q.h., 5- and 6-week intensives are offered at the special reduced rate of \$526 (\$50 less than the normal tuition). Refer to the *Summer Schedule* for special summer offerings. Check the current *Schedule* for a list of these courses. Intensive rates do not apply to non-credit CEU courses.

Student Center Fee

All students in University College on the Huntington Avenue campus are charged \$8.25 each quarter for the services available in the Student Center.

Laboratory Fees

Some courses have lab fees that will be applied to your tuition bill. You will find the lab fee notation at the end of the course description. Rates for the labs follow:

Art Studio Labs	\$35.00
Biology Laboratory	\$50.00
Computer Graphics Lab	\$50.00
Chemistry Laboratory	\$65.00
Medical Lab Science/ Phlebotomy/Forensics	\$35.00
Photography Lab	\$50.00

Special Tuition Rates

Nursing courses and the EMT Basic course are offered at special rates. Lowell Institute courses are also offered at a special tuition rate. Please consult the current *Schedule* for those fees.

Music students enrolled in music instruction pay a special rate. For details contact Marjorie Atlas, University College Music Coordinator, 351 Ryder Hall, telephone 617.373.2440 or 617.373.2442.

Health Service Waiver Process

Northeastern is required by the State of Massachusetts to enroll all students who are matriculating and taking nine credits or more, onto the University's Health Insurance Plan. Therefore, a **Health Service Fee will be automatically charged to your tuition bill.**

If you have comparable health insurance, you may **waive the University's plan by completing a waiver form prior to the quarter's deadline date.** If you have any questions regarding the fee or waiver, please contact the Finance Office in 249 Richards Hall or call 617.373.2111. Waivers should be returned directly to the Finance Office.

Student Liability Insurance Fee

Students taking specific clinical or practicum courses are required to purchase liability insurance for an \$18 fee, which covers one academic year, Fall term through Summer term. This requirement is specified in course descriptions.

Missed Final Examination Fee

Students absent from the regularly scheduled final examination at the end of a course may petition for a missed final examination. The fee for each examination requested by the student is \$50. The fee must be paid when the petition is filed in the Office of Academic and Student Affairs, 180 Ryder Hall.

Transcripts

Northeastern University requires a written release before a transcript can be mailed out. Requests must be made in-person or by mail. Fax, phone and e-mail requests will not be accepted. When mailing in your request for transcripts, you must include the following information: name, current mailing address, date of birth, social security or NU ID number, college/programs attended, year(s) attended, degree(s) received, number of copies requested, complete mailing address where transcript is to be mailed, and a check made payable to Northeastern University for the total cost of the transcripts. Official transcripts are \$2.00 each for the first five, and \$.50 each thereafter. Written requests should be sent to: Northeastern University, Attn: Transcript Office, 117 HA, 360 Huntington Avenue, Boston, MA 02115-5096.

Requests made in-person must be accompanied by a valid photo ID and a receipt for payment from the Cashier's Office at 248 Richards Hall. Current students may obtain an unofficial copy of their transcript from the student information kiosks. Former students may obtain an unofficial copy of their transcript *in person only* from the Transcript Office at 117 Hayden Hall during office hours. If you have questions regarding transcripts, please contact the Transcript Office at 617.373.2302.

FINANCIAL AID

Students must be admitted to a degree program in order to be eligible for financial aid.

The Office of Student Financial Services, located at 356 Richards Hall, offers several types of assistance to part-time and full-time University College students. All awards are based on financial need. Aid granted from programs sponsored by the federal or state government is dependent upon the amount of funding allocated to Northeastern University. Federal regulations require that students who receive financial aid funds be United States citizens or permanent residents.

Application Procedure

All students applying for aid must submit a Free Application for Federal Student Aid (FAFSA) to the Federal Student Aid Programs. Upon receipt of the FAFSA, the processor will analyze the information and send to the student a Student Aid Report (SAR). If the information on the SAR is correct, the student should keep the SAR for his or her records.

Northeastern University also requires its students to complete an institutional application. The Northeastern Application will provide your counselor with information that is not on the FAFSA.

If your federal record indicates you are in default on a loan or you owe a refund, you will be ineligible for all types of financial aid until this status is cleared.

All application materials are available at the Office of Student Financial Services. Students should begin the application procedure at least **twelve weeks** before the start of the quarter in which they plan to enroll. Students must apply for financial aid each academic year.

In order to be eligible for financial aid, students must be admitted into a degree program by the end of the first week of the academic quarter for which they are interested in receiving financial aid. Students admitted after the first week of the quarter will not be eligible for aid until the next academic quarter. Students not yet admitted into a degree program are advised to contact the University College Office of Academic and Student Affairs, 180 Ryder Hall, 617.373.2400.

Satisfactory Academic Progress

For all students receiving financial aid for the first time on or after July 1, 1987, satisfactory academic progress will be determined based on having achieved a 2.0 q.p.a. after the completion of the second grade level and maintaining that minimum until degree completion. Students not achieving a 2.0 q.p.a. or dropping below that minimum after their second grade level will not, by Federal law, be eligible for financial aid.

Financial Aid Programs

Financial aid to students is offered in the form of loans and grants:

• Federal Pell Grants

Based on a student's financial information, a student may be eligible for a Federal Pell Grant. A student with a first bachelor's degree is not eligible for a Federal Pell Grant. Approximately six weeks after a student has filed the FAFSA, the Federal Pell Grant Processor will send the student a Student Aid Report (SAR). The SAR will indicate whether the student qualifies for a Federal Pell Grant.

If eligible for a Federal Pell Grant, the amount of the grant will vary depending upon the number of quarter hours a student is enrolled in for each quarter.

• Federal Stafford Loan Program

The Federal Stafford Loan Program enables a student to borrow a maximum of \$2,625 during the freshman academic year, \$3,500 during the sophomore year, and \$5,500 for subsequent years from a participating bank or other financial institution. The federal government pays the interest on government subsidized loans while the student is in school. This loan must be repaid. The legal maximum loan limit for undergraduate students is \$23,000.

Eligibility to participate in the Federal Stafford Loan Program is based on need in accordance with federal regulations. Students must be admitted into a degree program and enrolled in at least a half-time (6 quarter hours per quarter) basis in order to be eligible for this loan.

In order to have a loan processed by the Financial Aid Office, a student must have completed financial aid applications on file, have received a letter of eligibility from our office, and have submitted a Federal Stafford Student Loan Application.

Applications for the loan are available from local lending institutions and the Office of Student Financial Services.

Repayment of the loan usually begins six months after a student withdraws, graduates from an educational institution, or ceases to carry at least a half-time course load. The repayment period may be as long as ten years. The amount of the payments depends upon the size of the debt but must be at least \$50 per month.

Repayment on loans may be deferred under certain circumstances. For details, contact your lender.

Students who borrow funds through this program must report any of the following changes to their lenders:

- withdrawal from school;
- transfer to another school;
- reduction of course load to less than half time;
- change of address or parents' address; and
- change of name.

Students who do not show financial eligibility for the Federal Stafford Loan may qualify for the **Unsubsidized Stafford Loan**. This loan has the same interest rate, repayment terms, etc., but the student must pay interest while in school or may defer it and the accrued interest will be added to the principal.

Additional information about financial aid is available from the Office of Student Financial Services, 356 Richards Hall, 617.373.3190.

All federal financial aid programs are subject to change depending on adequate and continuing federal support.

• State Scholarships

Eligibility for state scholarships is based on need and is determined by the Scholarship Office in each state. If you completed a FAFSA, you will receive a separate letter from your State Scholarship Office notifying you of your eligibility. In order to be eligible for a state scholarship, a student must be admitted into a degree program and enrolled in at least 12 quarter hours per quarter for 2 quarters (Fall and Winter) during the academic year. A student with a prior bachelor's degree is not eligible to receive a state scholarship. Contact your State Scholarship Office for more information. (Priority filing deadline for the FAFSA for State Scholarship consideration is May 1 of each year.)

SCHOLARSHIPS

The following University College and Lowell Institute scholarships and awards are available to students who have been accepted as degree candidates and are in good academic standing.

Scholarships are awarded once a year by the Scholarship Committee. Final selection of scholarship recipients is usually made in late July, followed by award notification in August. Funds are usually applied to tuition expenses for the Fall quarter. Awards typically range in amount from \$500 to \$1,000.

Application Procedure

At the end of January, a mailing list of students who have requested applications is prepared, and applications are mailed out with the stipulation that they be completed and returned to the Office of the Dean by March 31. A student can be placed on the January mailing list by calling 617.373.2400 or TTY 617.373.2825 and leaving his or her name and address with the receptionist.

Dean Kenneth W. Ballou Family Scholarship Fund

The Dean Kenneth W. Ballou Family Scholarship Fund was established in 1986 by the generosity of the Kenneth W. Ballou family. Dean Ballou served Northeastern University in various capacities from 1957 to 1978, including as Director of Undergraduate Admissions, Dean of University Relations, Assistant to the President, Dean of Adult Education Programs, and Dean of University College. This scholarship is awarded annually to a University College student(s) who demonstrates financial need, academic promise, and leadership potential.

The Bookbuilders of Boston Scholarship

This scholarship was established in 1982 in memory of Martin B. Sweeney, who taught publishing courses for many years at Northeastern. The funds have been provided by The Bookbuilders of Boston, a professional organization, to support the education of students interested in book publishing. To be eligible for the award, a student must be able to demonstrate interest in publishing as a career, must be taking courses related to publishing and the graphic arts, and must become an active part of the organization.

James A. Buczel Memorial Scholarship

This scholarship was established in 1988 in memory of James A. Buczel, who received his associate in science degree in 1978. The endowment funds were provided by the family, friends, and associates of Mr. Buczel, who was a member of the U.S. Customs Service of the Department of the Treasury. He lost his life in the line of duty while inspecting cargoes on Sunday, October 9, 1988, in New Haven, Connecticut. The income from this memorial scholarship fund is to be awarded to undergraduate students in University College who are majoring in Criminal Justice and demonstrate financial need, academic promise, and soundness of character.

Godfrey L. Cabot Scholarship Fund

This fund was established by Dr. Cabot in 1954 to help meet the college expenses of employees or children of employees of Cabot Corporation and its subsidiary and associated companies. The employee must have completed at least five years of service with the company prior to the time the student enters the University. The University shall determine the number and amount of these scholarships, which are not based on scholastic achievement and are available to evening as well as day students. Students interested in applying for scholarship aid from this fund should contact the Cabot personnel office or the Office of Financial Aid at Northeastern University.

Dorothy G. Cooley Scholarship

This scholarship was established in 1988 by Dorothy G. Cooley, a 1960 graduate of the evening division of The School of Business, now University College. The income from this fund is to be awarded to responsible women students who are candidates for a bachelor's degree and who have demonstrated soundness of character and who have above average scholastic ability.

Criminal Justice Alumni Association Scholarship

The Northeastern University Criminal Justice Alumni Association Scholarship is available to both University College bachelor's degree students and day students. A student must have completed at least 75 percent of the degree coursework, have a q.p.a. of 3.0 or better, and complete the application and essay by March 1. Information is available in the Office of Alumni Relations, 346 Richards Hall.

Henry J. Doherty Memorial Scholarship

The Henry J. Doherty Memorial Scholarship Fund was established in 1987 through the generosity of Doris R. Doherty, as a tribute to her late husband, a 1953 graduate of the Evening School of Business and a successful business leader in the field of legal publishing. The income from the scholarship is awarded annually to deserving students with demonstrated financial need who are pursuing part-time evening study and have been accepted as degree candidates.

Charlotte M. and Theodore S. D'Orlando Scholarship Fund

This fund was established in 1991 by Theodore S. D'Orlando, a graduate of the evening School of Business, Class of 1951. Past president of the Alumni Association and member of The National Council, Husky Associates, and The Huntington Society, Mr. D'Orlando earned an MBA from the College of Business Administration in 1957. Income from this fund is used to assist part-time students of average academic record who are enrolled in a University College degree program and are motivated to improve their scholastic standing, show potential to succeed, and who without financial assistance could not attend Northeastern University.

Electronics Industries Personnel Association Scholarship

This scholarship was established in 1980 through the generosity of the Electronics Industries Personnel Association. The income is awarded annually to one or more students whose studies, to a significant extent, are in the field of human resources management at University College. Recipients shall demonstrate financial need, soundness of character, and academic stability.

Howard W. Evirs, Jr. Scholarship

This scholarship fund was established in 1991 by Howard W. Evirs, Jr., a graduate of the College of Engineering, Class of 1951, and the Graduate School of Business, Class of 1970.

It is Mr. Evirs' desire to provide financial assistance to a single parent, preferably a female, enrolled in any full-time or part-time baccalaureate program of the University who has demonstrable financial need and proven academic excellence. The income from the scholarship fund, which is administered by the Financial Aid Office, will be awarded annually.

Students should apply to Northeastern University/Office of Financial Aid, 356 Richards Hall, Boston, MA 02115 regarding the above scholarship.

Vincent A. Forte Memorial Scholarship

This scholarship was established in 1985 in memory of Vincent A. Forte, a graduate of Northeastern University. The endowment funds were provided through the generosity of his family, friends, and associates. Forte was an ambitious student pursuing a full-time business career while attending school part-time. He received an associate's degree from Lincoln Institute in 1957, a Bachelor of Business Administration degree in 1958, and a Master of Business Administration degree in 1967. The income from this fund is awarded to undergraduate students in University College who are pursuing a bachelor's degree in business, who demonstrate financial need, and who are maintaining a cumulative quality-point average of 3.0 or better after completing at least 44 quarter hours of credit.

Joseph L. Gedges Memorial Scholarship Fund

The Joseph L. Gedges Memorial Scholarship Fund was created in 1996 by Anne Gedges, '53 and '56, in memory of her father and brother. The scholarship will provide annual awards for evening students in the middle years of their degree program. Preference in selecting recipients will be given to students studying business or engineering programs.

Chester W. Higgins Memorial Scholarship

The Chester W. Higgins Memorial Scholarship was established in 1991 by the generosity of Mrs. Marion Higgins, as a tribute to her late husband. Chester (Chet) Higgins was a senior lecturer in the Business Administration program of University College for almost forty years. He also served as President of the Faculty Society and was instrumental in establishing the Faculty Society Memorial Scholarship program to benefit part-time students. To be eligible for this award, a student should be majoring in management in University College and should demonstrate financial need, academic promise, and soundness of character.

The John W., Jr., and Helen D. Jordan Scholarship Fund

John W. Jordan, Jr., retired from University College in 1997 after serving as the Dean for almost 20 years. This scholarship fund was established in recognition of his commitment to adult education. Designated to assist students pursuing their academic studies on a part-time basis, the scholarship will be awarded to applicants who demonstrate academic excellence in either a graduate or undergraduate certificate or a degree program at University College.

Nicholas G. and Helen Kakleas Scholarship Fund

This scholarship was established in 1996 through the generous support of Nicholas G. Kakleas, an alumnus of University College and current President/Chair/CEO of CGI Circuits, and his wife, Helen. This award is to provide financial aid through annual awards to worthy and needy students at University College.

Kappa Tau Scholarships

The Kappa Tau Phi Sorority Scholarship Fund annually makes scholarship awards available to women students in the science, business, engineering, and liberal arts programs who rank highest at the end of the upper-middle year. In the event that the chosen student is eligible for an award of greater monetary value, the award is made to the next highest-ranking woman student. To be eligible for this scholarship, the student must be enrolled in a course meeting at least two evenings per week and must be a candidate for a bachelor's degree. In determining the recipient, grades of all courses completed in prior years are considered.

Angelina M. Lentini Scholarship

This scholarship was established in 1991 through the generous support of Angelina Lentini, a graduate of Lincoln College, class of 1967, and University College, class of 1969. This award is to be made to an entering freshman female student who has graduated from the Boston Public School system and has demonstrable financial need. Recipients of this award may reapply in their upper-class years for continued support. Interested students should apply to Northeastern University/Office of Financial Aid, 356 Richards Hall, Boston, MA 02115, regarding the above scholarship.

Paul M. and Virginia A. Lepley Scholarship Fund

The Paul M. and Virginia A. Lepley Scholarship Fund was established in 1996 upon the retirement of Dean Paul A. Lepley from Northeastern University. Dean Lepley served Northeastern University as Dean of the Boston Bouvé College of Human Development Professions and as Professor of Health, Sport and Leisure Studies. The fund will provide annual scholarships to students matriculated in University College who have demonstrated financial need, academic promise, and soundness of character.

Alan A. and Shirley A. Mackey Scholarship Fund

The Alan A. and Shirley A. Mackey Scholarship Fund was established in 1987 upon the retirement of Alan A. Mackey from Northeastern University. Dean Mackey served Northeastern University in many capacities: as Dean of Administration, University Registrar, Dean of Continuing Education, and as a member of the mathematics faculty of University College. The scholarship fund provides annual scholarship awards to deserving University College students.

William J. McGovern Memorial Scholarship

The William J. McGovern Memorial Scholarship was established in 1978 by an anonymous donor to honor the memory of William J. McGovern. The donor wishes to assist others in realizing their potential through higher education. The income from this scholarship benefits worthy undergraduate students actively pursuing studies in University College or the Lowell Institute. Recipients must have declared a major, demonstrated financial need and academic achievement, and exhibited a high level of professional promise.

Helen (Boris) Melnik Memorial Nursing Scholarship

Helen (Boris) Melnik was one of the 3,236 graduates of the New England Deaconess Hospital's School of Nursing. Though taken ill early on in her own career, it is her family's hope that this scholarship will assist another practicing nurse in advancing in this caring profession. To be eligible for this award, a student should be a currently certified nursing assistant (CNA), licensed practical nurse (LPN), or registered nurse (RN) and demonstrate financial need, academic promise, and the desire to continue a career in the nursing profession.

Timothy F. Moran Scholarship Fund

This scholarship fund was established upon the retirement of Dean Timothy F. Moran, Associate Dean at University College and Director of the Law Enforcement programs. During his second career as an educator, Dean Moran, a retired state police officer, was an innovator and leader in the education of law enforcement officers both in New England and throughout the world. His former students, colleagues, and friends made substantial contributions to establish this fund in his honor. This scholarship is awarded annually to students majoring in policing, security, or corrections who demonstrate academic excellence and financial need.

James D. Mukjian Memorial Scholarship

This memorial scholarship fund was established in tribute to James D. Mukjian, a 1955 graduate of the School of Business who also received a graduate degree in business in 1964. Mukjian had worked with the U.S. Defense Logistics Agency, with Sylvania, and with Raytheon before retiring. He was a Senior Lecturer, teaching Industrial and Business Management for University College for 25 years. He also served as President of the University College Faculty Society of Northeastern.

Eva Needle Memorial Scholarship

The Eva Needle Memorial Scholarship Fund was established in 1965 with the aid of the Norman Knight Charitable Foundation and is maintained through the generosity of the friends of Bob and Ted Needle in memory of their mother. The income from the fund is awarded annually to a deserving student in the accounting program who demonstrates superior academic achievement. The recipient is selected jointly by Ted Needle, a long-standing member of University College's accounting faculty, and the Scholarship Committee.

Harry Olins Memorial Scholarship

The Harry Olins Memorial Scholarship Fund was established as an expression of a belief in University College students and "what they stand for." The fund, presented by Mrs. Olins in recognition of her husband's long service on the business faculty, makes available an annual tuition award to students who, in terms of scholastic achievement, character, and personal need, best typify the spirit of Northeastern University. To be eligible for this award, the student must be a business administration degree candidate and carry a full academic load during the school year.

Nancy Lee Patterson Memorial Scholarship

This fund was established in 1988 by the family and friends of Mrs. Nancy Lee Patterson at the time of her death. Income from the fund is awarded annually to female students, age 35 or over, attending University College, who demonstrate financial need, soundness of character, and academic stability.

Sigma Epsilon Rho Honor Society Scholarship Awards

The Sigma Epsilon Rho Honor Society Scholarship Awards, established in 1974 by the membership of the Society, are awarded annually to undergraduate students of University College and the Lowell Institute. Eligible students must have a cumulative quality-point average of 3.25 or better after completing 75 percent or more of their required studies.

The Stotsky Award

The Stotsky Award was created in 1990 when Dr. Bernard A. Stotsky, after 28 years of dedicated service as a faculty member and Chief Psychiatrist at the Lane Health Center, established a fund at Northeastern University in memory of his parents, George and Bess Stotsky.

A cash prize of \$250 will be presented annually to one or more students who have exhibited an unusual understanding of, and sensitivity to, Jewish history with particular reference to the Holocaust period. Works submitted for consideration may include, but are not limited to, research in the field, special projects, programs, or activities designed and implemented to enhance understanding of the Holocaust.

Any student in good standing, currently enrolled in any school, department, or program of Northeastern University, is eligible to receive the Stotsky Award. Submissions made by March 1st will be eligible for the current year's award.

This award is administered by the Religious Life Office of Northeastern University. Interested students should contact them at 617.373.2728 for further details. The mailing address is Religious Life Office, Room 207 Ell Building, Northeastern University, Boston, MA 02115.

H. Patricia Taylor Scholarship Fund

The H. Patricia Taylor Scholarship Fund was established in 1974 by H. Patricia Taylor, a graduate of University College, and her husband, Harry C. Taylor, a graduate of the School of Business. The scholarship expresses their appreciation for financial assistance made available to Mrs. Taylor when she was obtaining her degree and is an attempt to provide similar funds to assist others in realizing their potential through higher education. The income from the fund is awarded annually to a student enrolled in University College or the Lowell Institute who demonstrates financial need and academic stability and who meets certain other conditions of eligibility.

Jeffrey Lewis Tuton Memorial Fund

Established in 1994 in memory of her son Jeffrey Lewis Tuton, a graduate of the Paramedic Technology Program of University College, by Constance Higgins. The fund will provide supplemental financial aid for the purchase of books by full-time students who are enrolled in the certificate or associate's degree program in paramedic technology and who have demonstrated financial need.

U.S. Navy Field Training Supervisors Association Memorial Scholarship

A scholarship fund has been established through the generosity of the U.S. Navy Field Training Supervisors Association in commemoration of the Association's deceased members. The scholarship is awarded annually to a deserving student, selected by the Scholarship Committee, who is a management major working toward a bachelor's degree in the evening program at University College.

University College Faculty Society Memorial Scholarship Awards

The Faculty Society of University College offers several awards annually, primarily for excellence in studies, to bachelor's degree candidates in University College who have carried and are currently carrying a minimum of 24 quarter hours annually. Applications, available during the Winter quarter, must be returned before the Spring quarter. These awards are given in commemoration of the Faculty Society's deceased members.

Roberta Macycove Wasserman Memorial Scholarship

This scholarship was established in 1976 through the generosity of family members and friends of Roberta Macycove Wasserman, who, at the time of her death in 1975, was pursuing liberal arts studies within University College. The income from the fund is awarded annually to a deserving female student who is a homemaker with family responsibilities and who is pursuing part-time studies within University College. The recipient shall demonstrate financial need, soundness of character, and academic stability.

Robert I. Weisberg Scholarship Fund

Robert I. Weisberg, a successful 1972 University College graduate of Northeastern University, established this fund to show his appreciation for the education he received at Northeastern and to help future University College students realize their potential in obtaining a college education. Preference will be given to students who show professional promise, academic merit, and who are contributing substantially toward the cost of their education.

Awards

John W. Robbins Prize

The John W. Robbins Prize was established in 1984 under the terms of the will of the late Lena C. Robbins, in memory of her husband, John W. Robbins, an alumnus of Northeastern University. The income from this memorial gift is awarded annually to the outstanding student (Class Marshal) of the graduating class of University College.

ABOUT NORTHEASTERN UNIVERSITY

Profile of the University

At Northeastern University, we value part-time day and evening students as highly as we do our full-time students. You are important members of the academic community and reflect the changing profile of today's college student, which encompasses new concerns for lifespan learning and professional retraining. Northeastern supports your pursuit of personal and professional goals and wants to contribute to your success. You may join all our students in taking full advantage of the academic resources and facilities we offer. In return, you contribute to the intellectual and cultural diversity upon which this urban institution thrives.

Founded in 1898, Northeastern University is incorporated as a privately endowed, nonsectarian institution. From its beginning, the University's mission has been to identify and address the educational needs of a diverse community and student body in distinctive and useful ways. Northeastern did not duplicate the programs of other institutions but instead became a world leader in new areas of educational service. In particular, the University is known for its Cooperative Plan of Education, under which students alternate periods of work and study. All of Northeastern's undergraduate day colleges operate on the Cooperative Plan, and several of the University's graduate schools have structured their programs to include features of cooperative education. Today, the University comprises eight undergraduate colleges and nine graduate schools.

Our undergraduate colleges are

- Bouvé College of Health Science
- College of Arts and Sciences
- College of Business Administration
- College of Computer Science
- College of Criminal Justice
- College of Engineering, including the Lowell Institute School, of Engineering Technology
- University College

Our graduate schools are

- Graduate School of Arts and Sciences, including the Graduate School of Journalism
- Bouvé College of Health Sciences Graduate School
- Graduate School of Business Administration
- Graduate School of Professional Accounting
- Graduate School of Computer Science
- Graduate School of Criminal Justice
- Graduate School of Engineering
- School of Law

At Northeastern University, we respond to the needs of people who already hold jobs or are launched in careers but who wish to advance or change their professional lives as well as pursue personal interests. The University offers a variety of educational options—both credit and noncredit—to suit your particular objectives. University College offers part-time courses leading to certificates and to associate's and bachelor's degrees. The Lowell Institute offers part-time evening and weekend associate's and bachelor's degree programs in technological areas, in addition to daytime undergraduate programs.

All formal courses of study leading to degrees through part-time programs are approved by the full-time day faculty of Northeastern's undergraduate full-time day programs and are governed by the same qualitative and quantitative standards.

Research

Research and scholarship are integral parts of Northeastern University's commitment to the intellectual growth and academic achievement of its students. Research activities span almost every academic field and include laboratory projects, theoretical studies, and technological applications.

Funding for research comes from government agencies, foundations, corporations, and the University itself. In recent years, such industrial firms as Beckman, General Electric, Digital, and Lockheed have supported Northeastern's research programs. Currently, external grants and contracts exceed \$36.8 million annually.

Northeastern's faculty numbers among its ranks some of the most distinguished scholars in their fields, and many have received such prestigious awards as Sloan Scholarships, Guggenheim Fellowships, National Institutes of Health Research Awards, Fulbright Scholarships, and a MacArthur Foundation grant. Faculty members lecture the world over, serve as consultants to industry and government agencies, participate on a variety of national and international committees, and are quoted frequently in the regional and national press on a wide range of subjects.

University Libraries

Together, the collections, services, staff, and facilities of the Northeastern University Libraries provide access to information and an understanding of the organization of the literature and other information resources of the academic disciplines. The Library is integral to the academic and research processes wherever these occur—on campus or at a distance, in formal class and laboratory settings or through individual study and enrichment.

All part-time students have full access to all units of the University Libraries located on the Boston and Burlington campuses and at the Marine Science Center in Nahant.

Total holdings of the University Libraries include more than 900,000 volumes, 2,100,000 microforms, current subscriptions to more than 8,400 serials and newspapers, 250,000 government documents, and 21,000 audio, video, and computer software items.

Snell Library, a centralized library for the Boston campus, has 2,800 seats on five levels and is open more than 100 hours each week that classes are in session. It also has an all night facility, including a microcomputer lab, access to Boston-campus course reserve materials, and study space, which is open from midnight to 8:00 a.m., Sunday night through Thursday night during the academic quarter and final exam periods. This area is open only to currently enrolled students, as well as current faculty and staff, and a valid NU ID is required for access after midnight. Arrangements may be made for parking during late-night Library use.

Library services incorporate on-line, network, and media technologies that are associated with information resources, including an on-line catalog and circulation system, microcomputer and language laboratories, specialized equipment for users with disabilities, a media center, a CD-ROM network, and access to Web and other Internet resources through the Library's gateway. Many electronic resources are restricted to Northeastern University users, and in order to access and use these databases from computers off campus, students may request a PPP account from the Division of Academic Computing, 39 Richards. The Library is connected to NUnet, the University's computing network. Students can access NULIS (Northeastern University Libraries Information System) from outside the Library via the network. Students can also utilize many NUnet software applications from three microcomputer labs in the Library.

The Burlington Campus Library's collection supports courses taught at that campus. The on-line catalog, the gateway to electronic resources, and the CD-ROM network are accessible, and materials from the Snell Library collections can be requested at and delivered to Burlington.

Library staff are available in all service areas to assist students, including students with disabilities. Librarians provide instruction to groups and to individuals on the bibliographic research process and on strategies for identifying, locating, evaluating, and using print, non-print, and electronic information resources. Each term, workshops and tutorials are offered, giving students further opportunities to meet with a librarian to discuss particular or specialized research needs.

Northeastern University is a member of the Boston Library Consortium, a cooperative arrangement among the following academic and research institutions: Boston College, Boston Public Library, Boston University, Brandeis University, Brown University, Marine Biological Laboratory/Woods Hole Oceanographic Institution, Massachusetts Institute of Technology, Northeastern University, State Library of Massachusetts, Tufts University, University of Massachusetts (Amherst, Boston, Dartmouth, Lowell, and Worcester campuses), and Wellesley College. The University's membership in the Boston Library Consortium generally allows for on-site use by Northeastern students. To apply for a Consortium card that grants borrowing privileges, please inquire at the Circulation Desk. Some libraries in the Boston area require that a visiting student present a special pass or letter of introduction; a Northeastern reference librarian can advise about such student visitor policies.

Division of Academic Computing

DAC is responsible for providing students, faculty, and staff with reliable access to Northeastern's academic, technical, and information resources, including NUnet (the campus-wide network), lynx (Northeastern's mail, news, and Internet access computer), the VAXcluster (the University research mainframe), and public access computer labs. *Lynx*, the VAXcluster, the Snell Library computer system, and selected other University systems are available via modem dial-in facilities. Contact the Help Desk at 617.373.4357 and select option 1 for specific details.

FACILITIES AND RESOURCES

Alpha Sigma Lambda National Honor Society

The Northeastern University chapter of Alpha Sigma Lambda National Honor Society was chartered in 1994 as an honor society for students in continuing adult education. It strives to provide a stimulating impetus to highly motivated students in adult higher education early in their academic careers. Alpha Sigma Lambda recognizes the special achievements of adults who accomplish academic excellence while facing competing interests of home and work. Membership in Alpha Sigma Lambda Honor Society is by invitation to those students matriculated in the associate or baccalaureate degree programs and who meet the established criteria set forth in the chapter's by-laws. For more information, please contact the National Councilor for the Northeastern Chapter, 617.373.5664.

Campus Recreation

The Marino Recreation Center is open for intramural and club sports, drop-in recreation, aerobics classes, and fitness programs. A large gymnasium, used for basketball, volleyball, and badminton, is surrounded by a jogging track. Two floors of cardio-vascular equipment, aerobics and martial arts studios, selectorized weight machines, and a free weight room serve the varied physical needs of a diverse population. Cabot Center facilities including a swimming pool, indoor track and cage, and racquetball courts. University College students who are enrolled and attending classes have access to both facilities. An NU Husky Photo ID must be displayed when entering all facilities.

Social and Professional Clubs

We welcome and encourage part-time students in University College and the Lowell Institute to join in most of the social and professional activities that are organized and run by the student body, with the assistance of the Student Activities Office (255 Ell Center). Call 617.373.2642 or TTY 617.373.4747 for more information.

Sigma Epsilon Rho Honor Society

Sigma Epsilon Rho is the University College honor society. It aims to promote fellowship among those students who have attained highest scholastic standing in the College; to stimulate the student body to higher scholastic accomplishment through the bearing, influence, and work of these selected men and women; to develop methods of mutual improvement and advancement among members; and to support high moral, professional, and scholastic ideals. Only honor graduates are eligible for admission to the Society. Admission is by invitation after nomination by the Society. For more information, please contact Cornelius O'Leary, advisor, at 617.373.5169.

Curry Student Center

The Curry Student Center in the Ell Building provides facilities for student recreation and extracurricular activities. The Eugene J. Blackman Auditorium, with a seating capacity of 1,300, is attached to the Center. Also included are special drama facilities, a ballroom, student offices, conference rooms, an indoor quad, a food court with seating for more than 1,000, an information booth, a copy center, a gameroom, a video arcade, rental computers and

typewriters, television viewing areas, movie screenings, and a travel agency. The bookstore is adjacent to the Center.

University Health Services

Lane Health Center (LHC), located at 135 Forsyth Building, provides comprehensive hospitals in the Boston medical community. For full-time undergraduates (enrolled in 9 quarter hours or more) and graduate students who pay the health fee, LHC provides primary care services for health promotion, disease prevention, sexual health concerns, treatment of illness or injury, and management of chronic conditions. Mental health, routine diagnostic testing, nutrition, and allergy and other injections are available services as well.

General Hours: Monday through Friday, 9:00 a.m.-7:00 p.m.; Saturday, 9:00 a.m.-1:00 p.m. Hours vary during holidays, intercessions, and Summer quarter.

When LHC is closed, it is recommended you call New England Baptist Hospital (NEBH) at 617.754.5544, to speak to a healthcare provider.

Alumni Association

Upon graduation, University College students will join the more than 120,000 alumni united within the Alumni Association, which was established to promote a mutually rewarding relationship between Northeastern and its graduates. Association activities include the Homecoming celebration, presentation of the Outstanding Alumni Awards, and the annual presentation of Professional Promise Awards to outstanding seniors. The Association has regional clubs across the country.

PROGRAMS AT NORTHEASTERN

Undergraduate Colleges at Northeastern

Bouvé College of Health Sciences

Offers five-year cooperative education programs leading to the bachelor of science in Respiratory Therapy and Toxicology and to the bachelor of science with majors in medical laboratory science, cardiopulmonary sciences, and athletic training. Six-year entry-level programs leading to the Doctor of Pharmacy degree and Master of Science degree in Physical Therapy, and a four-year program leading to the bachelor of science degree in Speech-Language Pathology and Audiology are also offered. Students in the speech program may elect to continue for a fifth year to receive an accelerated master of science degree. In addition, a non-cooperative four-year baccalaureate program is offered in dental hygiene. Associate's degree programs are offered in medical laboratory science and dental hygiene. The College also offers post-baccalaureate certificate programs for physician assistants (the PA option is a 2-year program with the option of a Master of Health Professions), respiratory therapy, cardiovascular technology, and medical laboratory science (concentrations in blood banking, clinical chemistry, hematology, immunology, and microbiology). For information, call 617.373.3320.

School of Nursing

The School of Nursing offers a five-year cooperative education program leading to the Bachelor of Science degree in Nursing. The School welcomes transfer students and students planning a career change who have a degree in another field or who have completed a minimum of 60 quarter hours of transfer credits that are appropriate to curriculum requirements. These credits must include Anatomy and Physiology 1 and 2 with labs and one Chemistry course with lab. A Microbiology course with lab is strongly recommended as well, to enter our 2-year, 6-month accelerated transfer track program. Call 617.373.3610. The School offers an RN to BSN option for Registered Nurses who wish to pursue a Bachelor of Science degree in Nursing and an LPN to BSN option for Licensed Practical Nurses. These options are offered in collaboration with University College. Call 617.373.5796. The School offers an RN to MSN program leading to a joint bachelor's/master's degree for qualified experienced registered nurses. For more information on this program, call 617.373.3125 (voice mail).

College of Arts and Sciences

Offers programs in the visual and performing arts, humanities, journalism, social sciences, physical and natural sciences, and mathematics leading to the bachelor of arts or bachelor of science degrees. For more information, call 617.373.2200.

College of Computer Science

Offers a five-year and a four-year cooperative education program leading to the bachelor of arts in Computer Science, and the bachelor of science in Computer Science, with emphasis tracks in database management, languages, and operating systems. Research opportunities are available to advanced students. For more information, call 617.373.2462.

College of Business Administration

Offers four- and five-year cooperative education programs leading to the bachelor of science in Business Administration (BSBA) and the bachelor of science in International Business (BSIB). Students in both programs complete a concentration in accounting, human resources management, marketing, finance and insurance, management, entrepreneurship and small business management, management information systems, or logistics and transportation. In addition, students in the BSBA program may concentrate in international business. For more information, call 617.373.2200.

Northeastern University's Center for Family Business, part of the College of Business Administration, is a membership-based program offering seminars and highly interactive roundtable workshops to family-owned businesses. Programs focus on a variety of topics from leadership succession and ownership transfer to conflict resolution around issues of power, control, and money. Constituent groups, such as a Leadership Development Forum for younger-generation members as well as a Seniors' and Women's Forum, complement the core program. Participation is also offered to a limited number of prospective members on a select basis. For further information, telephone Paul Karofsky at 781.320.8015 or e-mail at pkarofsky@lynx.neu.edu.

The Office of Executive Education offers executive-level management programs custom-designed to meet the specific needs of individual companies. Program faculty and administrative staff work together with key company executives to develop programs designed to utilize major current challenges as learning opportunities. Two types of

programs are offered. In one, the emphasis is on programs designed to help experienced managers improve their immediate effectiveness. In the other, emphasis is on preparing executives for promotion and reassignment. For more information, call 617.373.3239.

College of Criminal Justice

Offers a five-year cooperative education program leading to the bachelor of science degree. For more information, call 617.373.2200.

College of Engineering

Offers four- and five-year cooperative education programs in chemical, civil (including an environmental concentration), electrical (including a computer engineering concentration), industrial, and mechanical engineering leading to the bachelor of science with specification according to the program. The College also offers a six-year, accredited, part-time evening program leading to the bachelor of science degree in civil, electrical, or mechanical engineering. For more information about the part-time programs, call 617.373.2185. These programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. A more general program leading to the bachelor of science without specification is also offered. For highly qualified students, the electrical and computer engineering, and the mechanical, industrial, and manufacturing engineering departments offer five-year programs leading to the bachelor's and the master's degrees; students generally carry five courses per quarter and forego one cooperative work quarter to complete the program.

The School of Engineering Technology/Lowell Institute School

The School of Engineering Technology and its part-time division, the Lowell Institute School, offer programs leading to the associate in engineering and bachelor of science in engineering technology degrees. A full-time, five-year cooperative education plan is offered, at the baccalaureate level, in Electrical and Mechanical Engineering Technology and Computer Technology. In addition, part-time evening and weekend programs are available at the associate level and at the baccalaureate level in Electrical, Mechanical, and Mechanical/Manufacturing Engineering Technology and in Computer Technology. The C++/UNIX Specialist, Computer Technology, Electronics Technology, and Engineering Graphics Technology certificates are available on a part-time basis as well. Many of the part-time courses are televised via Network Northeastern to satellite campuses and company sites. For more information, call 617.373.2500, visit set1.coe.neu.edu/lis, or use info@lis.coe.neu.edu to send e-mail.

Graduate Schools at Northeastern

Bouvé College of Health Sciences

Offers programs leading to the Master of Science degree in general biomedical science, medical laboratory science, medicinal chemistry, pharmacology, toxicology, clinical exercise physiology, counseling psychology, rehabilitation counseling, speech-language pathology and audiology, human resource counseling, applied behavior analysis, college student development and counseling, applied educational psychology with specialties in school counseling and school psychology. The Master of Health Professions is offered with four options: general, health policy, physician assistant, and regulatory toxicology. The Certificate of Advanced Graduate Study may be earned in counseling psychology, rehabilitation counseling, school psychology, or human services specialist. A Doctor of Philosophy degree is offered in biomedical science with specializations in medical laboratory science, medicinal chemistry, pharmaceuticals, pharmacology, or toxicology. The Doctor of Philosophy degree is offered in school and counseling psychology. For more information, call 617.373.2708.

School of Nursing

The Graduate School of Nursing offers a full-time and part-time Master of Science Degree program that is designed to prepare nurses with a general background for advanced nursing practice as nurse practitioners, clinical specialists, nurse anesthetists, and managers. The master's program includes specializations in administration, anesthesia, community health, critical care, neonatal care, primary care, and psychiatric-mental health nursing. Within the framework of nursing science, the concepts of competence, quality, and collaboration provide the foundation for advanced professional practice. The curriculum is 52-54 quarter hours. Full-time students may expect to complete the degree requirements in one calendar year. Part-time students may take up to five years to complete the program. Classes are offered in the late afternoon and evening. The programs prepare graduates to qualify for certification for various specialties. The RN to MS degree program is designed for nurses holding a diploma or an associate degree in nursing. This special program offers an innovative pathway to earning a joint BSN/MS degree. The program requires 85 quarter hours for graduation. The MS/MBA degree program is an 88-quarter-hour program that prepares nurses for executive-level management in health care.

The Certificate of Advanced Study is a 30-quarter-hour post-master's program. It is designed for nurses with a master's degree in nursing who seek further academic preparation to learn advanced practice skills in another specialization or to qualify for national certification. Certificates are offered in administration, community health critical care, primary care, and psychiatric-mental health nursing.

For more information about any of these programs, call 617.373.3590 or 617.373.3125 (voice mail).

College of Arts and Sciences

Offers programs leading to the Master of Arts degree in economics, English, history, journalism, political science, sociology, and writing. The Master of Science degree is available in biology; chemistry; law, policy, and society; mathematics; and physics. The Master of Technical and Professional Writing, the Master of Public Administration, and the Master of Education degrees are also offered. The Master of Arts in Teaching degree is available in biology, chemistry, economics, English, history, mathematics, physics, political science, and sociology. The Master of Science in Operations Research is offered through the departments of Mathematics and Mechanical, Industrial, and Manufacturing Engineering. In addition, there are programs leading to the Doctor of Philosophy degree in biology; chemistry; English; history; law, policy, and society; mathematics; physics; psychology; public and international affairs; and sociology. Non-degree certification programs are offered in elementary, middle, and secondary education. There is also a non-degree certificate program in technical writing. Most programs may be completed through either full- or part-time study. For more information, call 617.373.3982 to be referred to the department of interest.

College of Criminal Justice

Offers both full-time and part-time study leading to the Master of Science in Criminal Justice. A full-time program normally takes one full year for completion. Although students are encouraged to tailor their program to meet their own educational and career objectives, the curriculum offers specialization in Justice Administration, Criminology, Juvenile Justice, Security Administration, and Research. For more information, call 617.373.2813.

College of Business Administration

The College of Business Administration is an integral part of the business community, and that link is demonstrated definitively through its graduate operations. CBA has two distinct graduate schools to address the specific and highly variable needs of the business community:

The **Graduate School of Business Administration** offers an array of degree programs in general management and finance available on both full- and part-time bases. The **Co-operative Education MBA** uses the experience-based learning model that is the hallmark of Northeastern University. This full-time program is ideal for those looking to change careers or those with little or no business experience. The **High Technology MBA** is an intense part-time program designed for the engineering or science professional who finds his/her career gravitating away from the technical side toward more business applications. The **Executive MBA** is also an intensive part-time program designed for those with a minimum of 10 years of experience whose record of promotion results in expanded responsibilities. The **Part-Time MBA**, in addition to allowing a student to continue employment, is unique among its peers as a program that is not only nationally ranked but also available on any of three different campuses. Students may attend classes at the Main Campus, the Burlington Campus on Route 128, or at the Financial District/Downtown Campus. The **Master of Science in Finance** is ideally suited for those students with an undergraduate business degree who are looking to advance and/or specialize in the highly technical field of finance. Finally, CBA has always offered the traditional **Full-Time MBA**.

The **Graduate School of Professional Accounting (GSPA)** is the premier educational resource serving the accounting profession in New England. It offers a joint **MS/MBA** degree in accounting and business specifically designed for liberal arts or sciences undergraduates seeking to establish their careers in the financial community through one of the international accounting and consulting firms. It is a high-intensity, 15-month program with a paid internship at one of those firms in the middle of the program. The program boasts a 100% placement rate upon graduation for its students. The **Master of Science in Taxation** is a specialized degree for those interested in the fields of corporate taxation or personal financial planning. The GSPA also sponsors a series of continuing education courses catering to the general business education needs of those in the professional services fields.

Both graduate schools partner with the Law School and the Graduate School of Nursing to offer joint degrees.

School of Law

The School of Law offers a full-time day program leading to the juris doctor degree. Northeastern offers the only co-op law program in the nation, which combines academic excellence with unparalleled experiential learning. The three-year curriculum includes four quarters of work experience in various legal settings, including judges' chambers, law firms, and governmental agencies. The faculty consists of highly productive scholars and teachers, many of whom also play a significant role in a broad array of public arenas. The school is strongly committed to diversity: more than 25 percent of the students are people of color and more than half are women. Six clinics are offered: Domestic Violence, Criminal Advocacy, Poverty Law and Practice, Prisoners' Rights, Certiorari/Criminal Appeals, and Tobacco Control. In addition, the university's Urban Law and Public Policy Institute, which addresses urban problems through a think tank and community information clearinghouse, was established at the law school in 1994. Concurrent degree programs for the MBA, MS in accounting, and Ph.D. in Law, Policy and Society are available. For more information, call 617.373.2395 or visit the Web site at www.slw.neu.edu.

College of Computer Science

Offers both full-time and part-time programs leading to the Master of Science in Computer Science with concentration in artificial intelligence, communication and networks, databases, operating systems, programming languages, graphics and image processing, software engineering, and theory. The Doctor of Philosophy program includes theory, computer systems, artificial intelligence, database management, networks, programming languages, and compilers. The Graduate Certificate program in Information Resources Management is offered jointly with the College of Business Administration. The certificate program gives students a coherent set of six graduate-level courses in the subject matter of information science.

College of Engineering

Offers full-time and part-time programs leading to the Master of Science in chemical engineering, civil engineering, computer systems engineering (CAD/CAM and engineering software design), electrical engineering, engineering management, industrial engineering, information systems, and mechanical engineering. An interdisciplinary master's program in operations research is also offered. A five-year program leading to both a Bachelor and a Master of Science degree is offered in electrical, industrial, and mechanical engineering. The Doctor of Philosophy degree is offered in chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering. An interdisciplinary Doctor of Philosophy is available for graduate students whose interests overlap two or more departments. Women in Information Systems program is also available. For more information, call 617.373.2711.

Northeastern University is dedicated to providing a diverse student population with an academic program and a course of professional preparation of the highest quality. The University values equally knowledge for its own sake, knowledge as a means to success in the workplace, and knowledge as a cornerstone of personal achievement and satisfaction. As a private urban university, Northeastern is determined to maintain its reputation as a friend to the city of Boston and a partner of the Commonwealth of Massachusetts.

The *Northeastern University University College Bulletin* contains the University's primary statements about these academic programs and degree requirements, as authorized by the president or the Board of Trustees. For information about other academic policies and procedures; student responsibilities; student academic and cocurricular life; faculty rights and responsibilities; or general personnel policies, benefits, and services, please refer to the *Academic Operations Manual*, *Undergraduate and Graduate Student Handbook*, *Cooperative Education Handbook*, *Faculty Handbook*, *Benefits and Services Handbook*, and related procedural guides, as appropriate.

Accreditation

Northeastern University is accredited by the New England Association of Schools and Colleges, Inc., which accredits schools and colleges in the six New England states.

Accreditation by the association indicates that the institution has been carefully evaluated and found to meet standards agreed upon by qualified educators. The undergraduate business programs offered by Northeastern University are accredited by the American Assembly of Collegiate Schools of Business.

Delivery of Services

Northeastern University assumes no liability for delay or failure to provide educational or other services or facilities due to causes beyond its reasonable control. Causes include, without limitation, power failure, fire, strikes by University employees or others, damage by natural elements, and acts of public authorities. The University will, however, exert reasonable efforts, when it judges them to be appropriate, to provide comparable services, facilities, or performance, but its inability or failure to do so shall not subject the University to liability.

The *Northeastern University Undergraduate Catalog* contains current information about the University calendar, admissions, degree requirements, fees, and regulations; however, such information is not intended and should not be regarded to be contractual.

Northeastern University reserves the sole right to promulgate and change rules and regulations and to make changes of any nature in its program; calendar; admissions policies, procedures, and standards; degree requirements; fees; and academic schedule whenever necessary or desirable, including, without limitation, changes in course content and class schedule, the cancellation of scheduled classes and other academic activities, and the substitution of alternatives for scheduled classes and other academic activities. In any such case, the University will give whatever notice is reasonably practical.

Northeastern University will endeavor to make available to its students a fine education and a stimulating and congenial environment. However, the quality and rate of progress of an individual's academic career and professional advancement upon completion of a degree or program are largely dependent on his or her own abilities, commitment, and effort. In many professions and occupations, federal or state statutes or regulatory agencies impose requirements for certification or entry into a particular field. These requirements may change while a student is enrolled in a program and may vary from state

to state or country to country. Although the University stands ready to help its students find out about requirements and changes in them, it is the student's responsibility to initiate the inquiry.

Disability Resource Center

The Disability Resource Center provides a variety of disability-related services and accommodations to Northeastern University's students and employees with disabilities.

Northeastern University's compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 is coordinated by the dean and director of the Disability Resource Center. Persons requiring information regarding the Disability Resource Center should contact Dean G. Ruth Bork at 617.373.2675 (voice) or 617.373.2730 (TTY).

Tuition and Fee Policy

Tuition rates, all fees, rules and regulations, and courses and course content are subject to revision by the president and the Board of Trustees at any time.

Emergency Closing of the University

Northeastern University has made arrangements to notify students, faculty, and staff by radio and television when it becomes necessary to cancel classes because of extremely inclement weather. AM radio stations WBZ (1030), WRKO (680), and WILD (1090) and FM station WBUR (90.9) are the radio stations authorized to announce the University's decision to close. Television stations WBZ-TV4, WCVB-TV5, and WHDH-TV7 also report cancellations. Since instructional television courses originate from live or broadcast facilities at the University, neither the classes nor the courier service operates when the University is closed. Please listen to the radio or television to determine whether the University will be closed.

If a storm occurs at night, the announcement of University closing is given to the radio stations at approximately 6 a.m. Classes are generally canceled for that entire day and evening at all campus locations unless stated otherwise. When a storm begins late in the day, cancellations of evening classes may be announced. This announcement is usually made between 2–3 p.m.

Equal Opportunity Policy

Northeastern University does not discriminate on the basis of race, color, religion, sex, sexual orientation, age, national origin, disability, or veteran status in admission to, access to, treatment in, or employment in its programs and activities. In addition, Northeastern University will not condone any form of sexual harassment. Handbooks containing the University's nondiscrimination policies and its grievance procedures are available in the Office of Affirmative Action, 175 Richards Hall. Inquiries regarding the University's nondiscrimination policies may be directed to:

Office of Affirmative Action
175 Richards Hall
Northeastern University
Boston, Massachusetts 02115
617.373.2133

Inquiries concerning the application of nondiscrimination policies may also be referred to the Regional Director, Office for Civil Rights, U.S. Department of Education, J. W. McCormack Building, Post Office Court House, Room 222, Boston, Massachusetts 02109-4557.

Family Educational Rights and Privacy Act

In accordance with the Family Educational Rights and Privacy Act of 1974, Northeastern University permits its students to inspect their records wherever appropriate and to challenge specific parts of them when they feel it is necessary to do so. Specific details of the law as it applies to the University are printed in the *Undergraduate and Graduate Student Handbook* and are distributed annually at registration for the University's colleges and graduate schools.

Tuition Default Policy

In cases where the student defaults on his or her tuition, the student shall be liable for the outstanding tuition and all reasonable associated collection costs incurred by the University, including attorneys' fees.

FACULTY

* Denotes senior lecturer as of October 1998.

Denotes Faculty Excellence Award Recipient.

π Denotes Academic Advisor

A
Michael J. Abruzzese, M.B.A.*
Information Systems
Primerica Financial Services
Nagy Acad. B.S.
Health Science
VA Medical Center
Deborah A. Adair, M.S., R.R.A.*
Health Information Administration
Elliott Hospital
Thomas J. Ahern, Jr., J.D.*
Business Law
Silver and Ahern
Gary Ahrendts, B.S.E.E.
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Motorola
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Biology
Northeastern University
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Building Design & Management
Shawshen Valley Tech. School
Marianne Alberino, B.S.*
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Edward E. Alessi, M.A.*
Sociology/Anthropology
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Compaq
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State-of-the-Art Program
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Katherine Gibbs
Susan A. Alves, Ph.D.*
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Castleton State College
Louis P. Anastasi, B.S., M.A.
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Anastasi Electric
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American Sign Language
Herbert D. Anderson, Jr., P.L.S.
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Bryant Associates, Inc.
Robert Anderson, B.S.
Building Design & Management
MA State Board of Building Regulations and Standards
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Angus Associates
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Human Resources Management

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Sally Arsenaault, A.S.
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Life Cycle Systems
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State-of-the-Art Program
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Bridgewater State College
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Board of Real Estate Brokers
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Art
P.C. Week
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Kaveh Azar, Ph.D.
Professional Engineering
AT&T Bell Lab
B
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Psychology
Boston VA Medical Center
Sara K. Baker, M.S.*
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Lynn Public School System
Richard J. Ball, B.S.B.A., C.E.M., C.D.S.M.
Building Design & Management
Intelligent Building Services
Louis E. Banderet, Ph.D.*
Psychology
U.S. Army Research Institute

Brendan Bannister, D.B.A.
Human Resources Management
Northeastern University
Maurice R. Banville, B.S.
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The Newark Group
John J. Baranofsky, M.S.*
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Brookline Music School
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Psychology
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Patrick Barry, B.A.
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United Parcel Service
Pam M. Basile, B.S.*
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Information Systems
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Human Resources Management
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Management
Compaq
Susan B. Belinsky, M.P.A.
Health Management
Laboure College
Patricia Bench, M.Ed.
School of General Studies/Mathematics
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Assistant Register of Deeds, Barnstable County
Dionisio Bernal, Ph.D.
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Biology
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BULL HN Information Systems
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Health Science
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Theodore Blank, Ed.D.*
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Dmitry Blinder, Ph.D.
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Spaulding Rehabilitation Hospital
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MBTA
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Marketing
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Dean College

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Dana Farber
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The Speech Consultancy
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Price Waterhouse Cooper
Karen Buzzard, Ph.D.*
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Information Systems

C
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Mitch Campbell, C.I.H.
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Cole Hersee Company
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Fire Systems Solutions
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Margo R. Capparelli, M.A.
School of General Studies/Sociology

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Pyrotech Consultants, Inc.
Donald A. Carbone, M.Ed.*
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MA Department of Education
Mark Carberry, B.S., M.S.
State-of-the-Art Program
LittleNet Advanced Technology Center
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Fluid Industrial Associates, Inc.
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Art
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Fuopolo & Carr, P.C.
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Marshall Simons Middle School
G. William Carter, B.S.E.E.
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Robert W. Casey, M.Ed.*
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Margaret P. Casper, Ph.D.*
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King Philip Regional Schools
Christopher L. Cass, M.A.*
Sociology/Anthropology
Badger Engineers, Inc.
Sharon G. Casavant, Ph.D.*
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MacSyma, Inc.
Kevin R. Cassell, M.A.
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Boston Police Department
Joseph A. Ceraiglia, P.E., B.S.E.E., M.S.E.E.
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New England Inspection Service
Aaron Chaissoo, B.A.
State-of-the-Art Program
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Linda A. Champa, M.A.*
English
Mintz Levin
Fred C. Chase, Jr., B.A.
Paralegal Professional Program
Davis, Malm & D'Agostine
Sheldon L. Cheek, Ph.D.
Art
Michael D. Chefitz, J.D.
Business Law
Gilberg, Kurent & Kiemen
Beato Cheng, Ph.D.
State-of-the-Art Program
GTE Labs
Nikki Chin, M.S.
State-of-the-Art Program
Dannik Company, Inc.
Linda Chinsen, B.S.
Radiologic Technology
Massachusetts Bay Community College
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Nursing
Youville Hospital
David Choi, M.S.E.E.
State-of-the-Art Program
DCScript
Axl W. Christensen, M.A.
State-of-the-Art Program
Consultant
Thomas J. Chuda, M.S.
Criminal Justice
Bunker Hill Community College
Eunice Chung, B.S.
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Northeastern University
Mary L. Churchill, M.A.
Sociology
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Peabody & Brown
Mary Beth Cicero, M.B.A.
Marketing
Sepracor, Inc.
Anthony Cicerone, Ph.D.*
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Bridgewater State College
Vincent Cirigliano, B.S.E.T.
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Eva J. Cirillo-Gongora, B.A.
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Digital Measurement Systems
Leroy K. Clark, Ph.D.
Psychology
Compaq Computer Corporation
Kalo Clarke, M.F.A.*
English
Northeastern University
Fred W. Clarridge, Jr., M.S.*
Earth Science
Wellesley Public Schools
Robert Claus, A.B.
Marketing
ACI US Inc.
Joseph Cleary, M.Ed.
Mathematics
Massasoit Community College
Paul F. Cleary, M.A.*
Economics
Occupational Analysis
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Deaf, Inc.
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Commonwealth of Massachusetts
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Massachusetts Division of Occupational Safety
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Designs for Living
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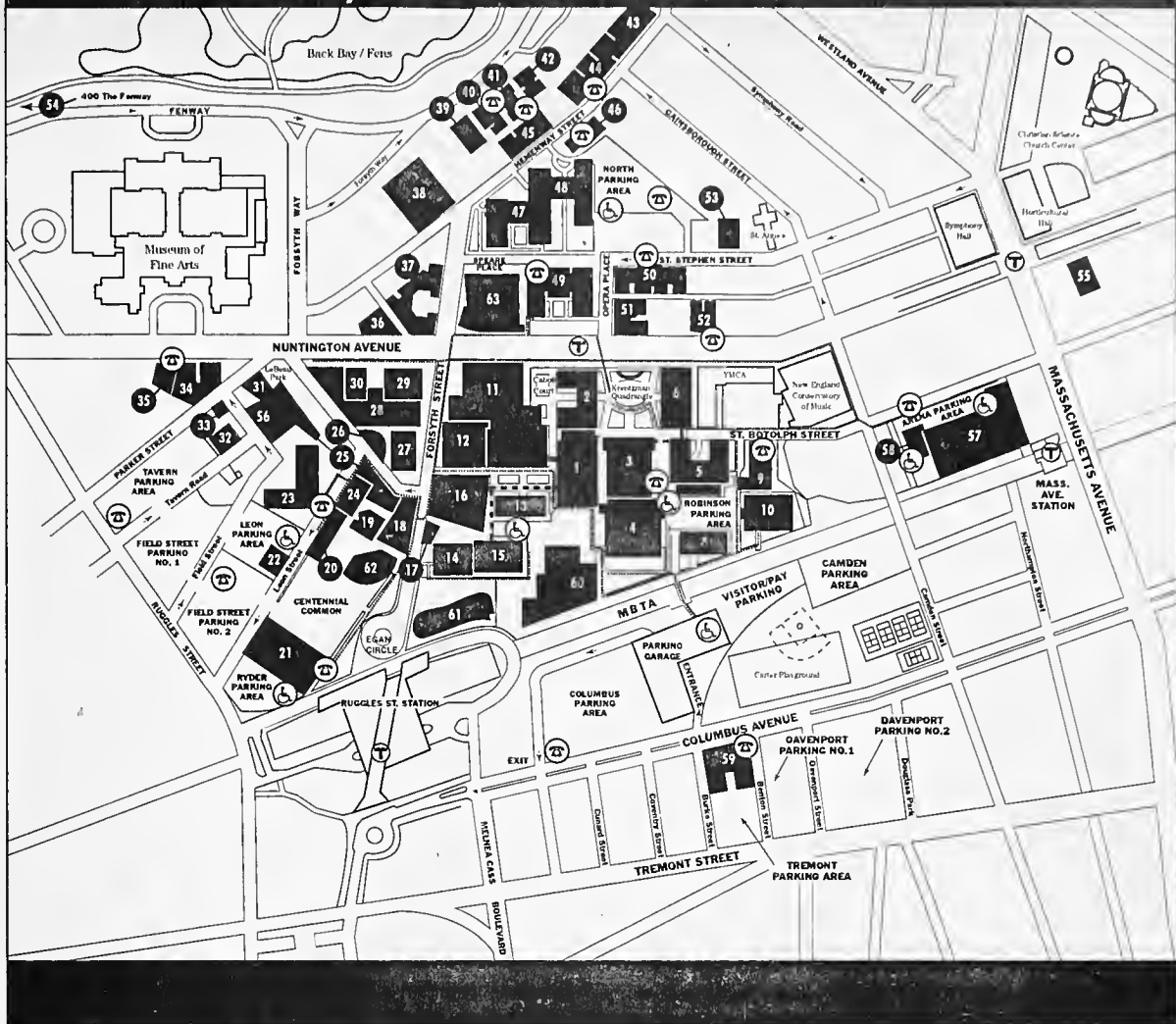
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13	Churchill Hall (CH)
62	Classroom Building (CL)
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58	Mathews Arena Annex (MX)
20	Meserve Hall (ME) TTY: Rm 305
5	Mugar Life Science Building (Peabody Health Professions Center) (MU)
18	Nightingale Hall (NI) TTY: Rm 125
31	Parker Building (PA)
2	Richards Hall (RI) TTY: Rms 150, 254
8	Robinson Hall (RB)
21	Ryder Hall (RY) TTY: Rms 170, 180, 251, 270
15	Snell Engineering Center (SN) TTY: Rm 120
60	Snell Library (SL) TTY: Reference Desk
50	122 St. Stephen Street (SS)
30	Stearns Center (ST) TTY: Rm 302
32	26 Tavern Road (TA)

Residence Buildings

34	Burstein Hall
43	Kennedy Hall
46	142-148 Hemenway Street
45	153 Hemenway Street and Loftman Hall
7	316 Huntington Avenue (Northeastern at the YMCA)
52	319 Huntington Avenue
51	337 Huntington Avenue
36	407 Huntington Avenue
41	Kerr Hall
53	Light Hall
45	Loftman Hall and 153 Hemenway Street
42	Melvin Hall
35	Rubenstein Hall
44	Smith Hall
49	Speare Hall
48	Stetson East TTY (public)
47	Stetson West
50	106/110/116/122 St. Stephen Street
23	Willis Hall
37	White Hall
54	400 The Fenway

Key

Academic, residential,
and service buildings

Handicap parking

Accessible routes

Parking areas

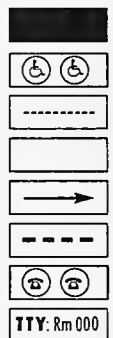
Street direction

Underground tunnel

Emergency telephone

TTY locations
See alphabetic list of buildings
for TTY locations.

Maps are provided by the Information Center, 115
Richards Hall, extension 2736 (TTY extension 3768).
Some buildings on this map are used but not owned
by Northeastern University. 5/96



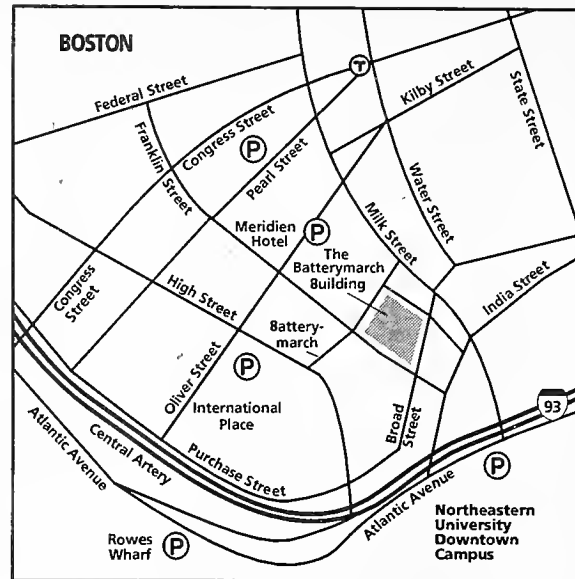
Boston Downtown Campus

Batterymarch Building

89 Broad Street

Take MBTA to State Street.

Exit at Old State House. Walk down State St., cross Congress St. to Broad St. Take right on Broad St. to 89 Broad St.



Brockton at Massasoit

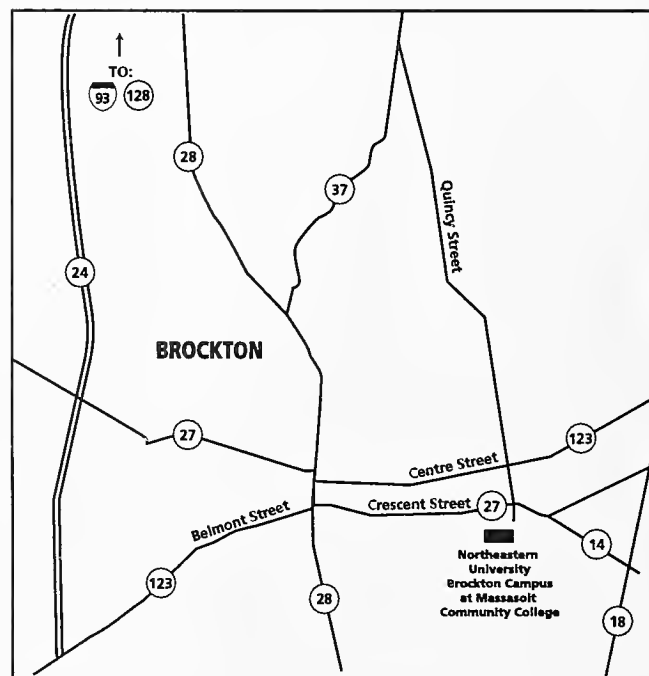
Community College

1 Massasoit Blvd.

From Boston take the Southeast Expressway to Rt. 128, to Rt. 24S, to Rt. 123 - Brockton Exit (VA Hospital) and follow the signs across town to Massasoit.

From Western Mass. take either Rt. 2E or Rt. 90E (Mass Turnpike) to Rt. 495S, to Rt. 24N to Rt. 123 - Brockton Exit (VA Hospital) and follow the signs across town to Massasoit.

From Northern Mass. take either Rt. 95, 93, or Rt. 3S to Rt. 128S, to Rt. 24S to Rt. 123 - Brockton Exit (VA Hospital) and follow the signs across town to Massasoit.



Burlington Campus
 South Bedford Street
 Burlington High School
 123 Cambridge Street

Burlington Campus

From 128 North or South, take Exit 33A and follow to South Bedford Street. Take right at lights and go 3/10ths mile to university entrance on your left.

Burlington High School

From Rte. 128 South to exit 33B (Rte. 3A). Take right at end of exit ramp. Approx. 1/4 mile to Football Stadium on left. Take left at lights.

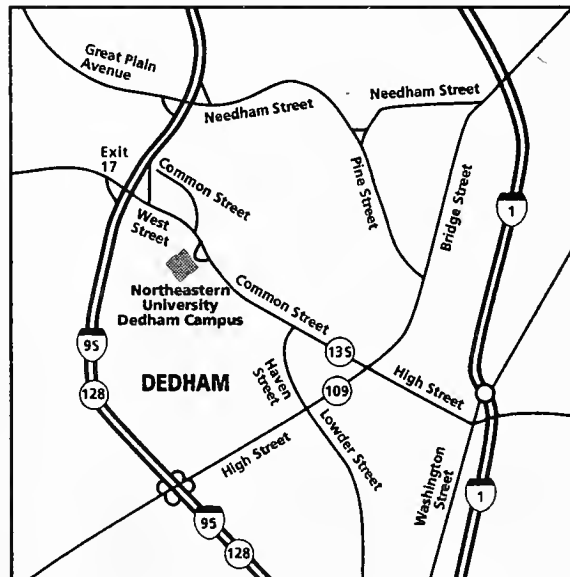
From Rte. 128 North to Exit 33B (Rte. 3A). At end of exit follow approx. 1/4 mile to Football Stadium on left and second set of lights. Take left at lights.



Dedham Campus
 370 Common Street

From Rte. 128 South, take Rte. 135 Exit. Turn right at end of ramp and follow Common St. to campus on the right.

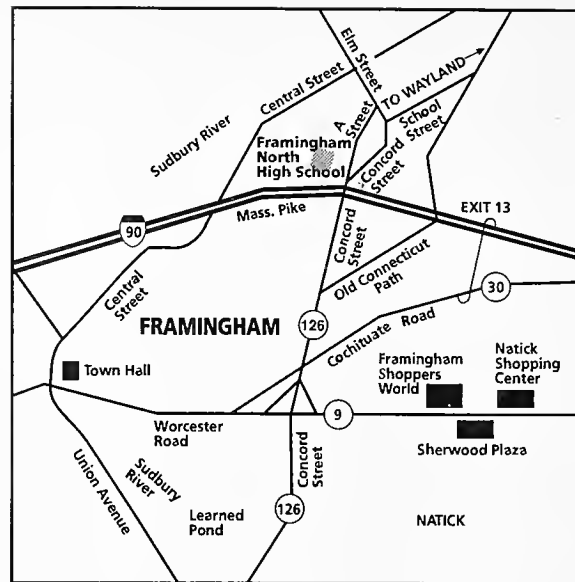
From Rte. 128 North, take Route 135 exit. Turn left at end of ramp and follow Common St. to campus.



Framingham High School

A Street

From Mass Pike going West, take Rte. 30 exit. Bear right after toll booth and take Rte. 30 West to Rte. 126 (Concord St.). Take right onto Rte. 126. Go under Mass. Pike to A Street (left at fork). High School on left.

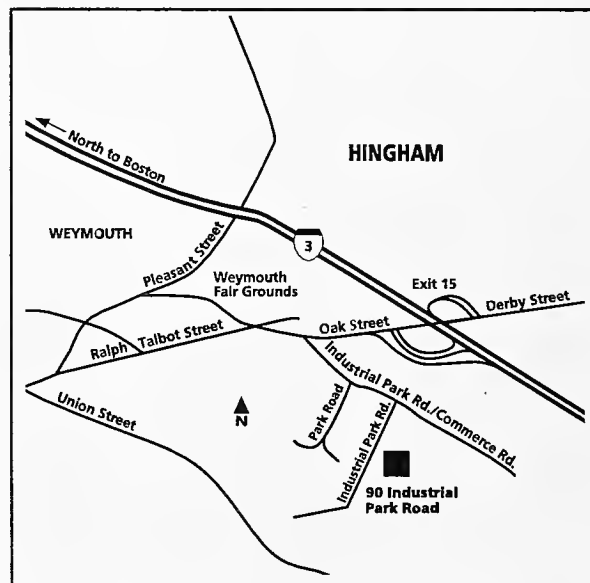


Hingham at South Shore Educational Collaborative School

90 Industrial Park Road

1. From the North and West Route 128 South to Route 3 South/Southeast Expressway South to Route 3 South. Follow Route 3 South to Exit 15 in Hingham. It reads: South Hingham, South Weymouth, Derby Street. At the top of the exit, make a left turn onto Derby Street. Follow Derby Street for about 100 yards and make a left turn into South Shore Park. You are now on Industrial Park Road. Follow Industrial Park Road for about one-half mile to 90 Industrial Park Road on your left. Turn into the driveway and bear left and down into the parking lot which is to the left-hand side of the building.

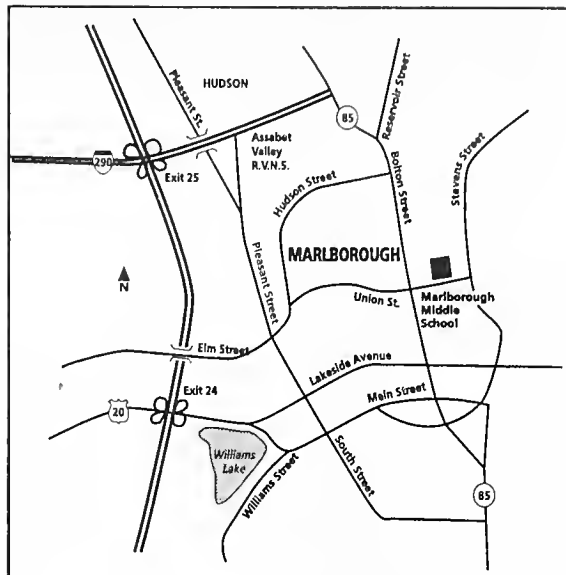
2. From the South Take Route 3 to Exit 15. It reads: South Hingham, South Weymouth, Derby Street. At the top of the exit make a right-hand turn and go over Route 3 bridge, past the Route 3 South entrance to the first left. The sign reads: South Shore Park. Take a left onto South Shore Park and you are on Industrial Park Road. Follow Industrial Park Road for one-half mile to 90 Industrial Park Road on your left. Turn into the driveway and bear left and down into the parking lot which is to the left-hand side of the building.



Marlborough Middle School

25 Union Street

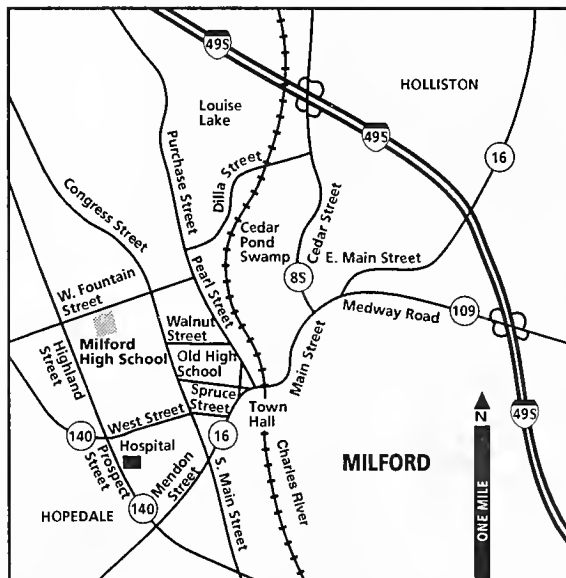
From Rte. 495 North to Exit 25, Rte. 290 Ext. Take exit and follow Rte. 290 Ext. to Rte. 85. Take right on Rte. 85 (Bolton St.). Make a left turn onto Union St. to Marlboro Middle School.



Milford High School

31 West Fountain Street

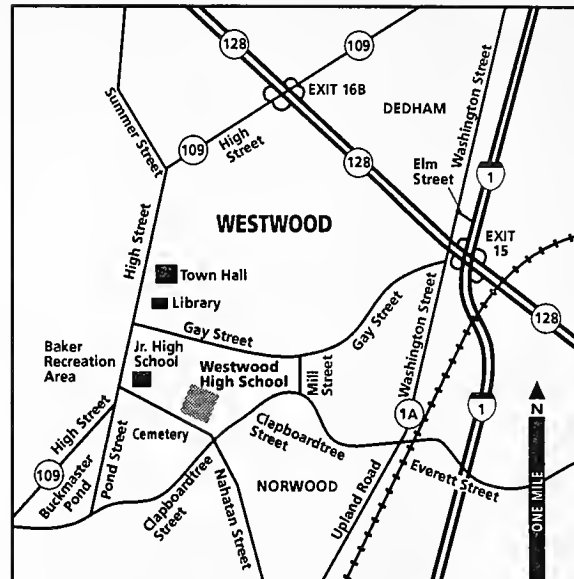
1. From Mass Pike and Rte. 9 to 495 South, Exit 20 to Cedar St. to Dilla St. to Purchase St. to Fountain St. to West Fountain St. to Milford High School.
2. From Rte. 140 past Milford Hospital. Go 1 mile; pass Shaw's Supermarket and Hills Shopping Plaza. Take right at island and proceed across West St. to Highland St., 3/4 mile to overhead blinking light. Take right onto West Fountain St. to High School.
3. From Rte. 109 to intersection with Rte. 16. Proceed through Milford (approx. 3 miles to Milford Hospital and Rte. 140). Take right at Milford Hospital and proceed as in step #2.



Westwood High School
200 Nahatan Street

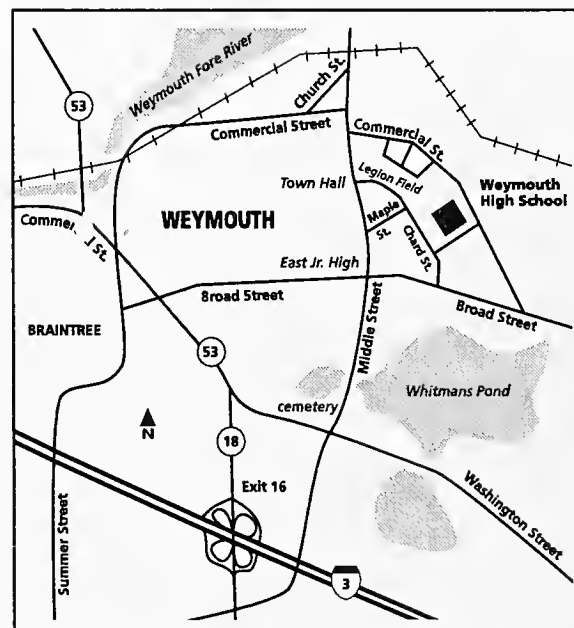
From Rte. 128 North take Rte. 109 Exit.
Go west after exit on Rte. 109 to Nahatan St.
on left. Take Nahatan St. to high school on
left.

From Rte. 128 South take Rte. 109 Exit.
Follow above directions on Rte. 109.



Weymouth High School
1051 Commercial Street

From Rte. 3 South. Exit at 16B onto Rte. 18
South. Turn left at the first traffic light onto
Middle Street. Continue through 3 more
traffic lights, then right onto Maple Street to
rear entrance of High School.



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CAMPUS LOCATIONS

- ☆ **General Information**
617.373.2400
TTY: 617.373.2825
(for the Deaf only)
fax: 617.373.2325
- ☆ **Office of the Registrar**
120 Hayden Hall
617.373.2300
TTY: 617.373.5360
fax: 617.373.5351
Monday-Thursday,
8:00 a.m.-7:00 p.m.
Friday, 8:30 a.m.-4:30 p.m.
- ☆ **Boston Main Campus**
180 Ryder Hall
360 Huntington Avenue
617.373.2400
TTY: 617.373.2825
(for the Deaf only)
fax: 617.373.2325
Monday-Friday,
8:30 a.m.-8:30 p.m.
Saturday, 8:30 a.m.-1:30 p.m.
- ☆ **Downtown Boston Campus**
Batterymarch Building
89 Broad Street
617.373.8300
fax: 617.373.8307
Monday-Thursday,
7:00 a.m.-10:00 p.m.*
Friday, 8:30 a.m.-4:30 p.m.*
Saturday, 8:30 a.m.-1:30 p.m.
- ☆ **Brockton Campus**
Massasoit Community College
1 Massasoit Avenue
Tuesday & Thursday,
5:00-10:00 p.m.
508.584.3874
- ☆ **Burlington Suburban Campus**
145 South Bedford Street
781.238.8400
fax: 781.238.8433
Monday-Friday,
8:00 a.m.-10:00 p.m.
Saturday, 8:00 a.m.-12:00 noon
- ☆ **Burlington High School**
123 Cambridge Street
781.270.1838
Monday-Thursday,
5:30-10:00 p.m.
- ☆ **Dedham Campus**
370 Common Street
781.320.8000
fax: 781.320.8016
Monday-Thursday,
8:00 a.m.-10:00 p.m.
Friday, 8:30 a.m.-4:30 p.m.
Saturday, 8:00 a.m.-1:00 p.m.
- ☆ **Hingham at the South Shore Educational Collaborative**
90 Industrial Park Road
Tuesday and Thursday,
5:30-10:00 p.m.
- ☆ **Framingham High School**
A Street
508.877.2333
Monday, Tuesday, & Thursday,
5:30-10:00 p.m.
- ☆ **Marlborough Middle School**
25 Union Street
508.481.2348
Monday and Wednesday,
5:30-10:00 p.m.
- ☆ **Milford High School**
31 West Fountain Street
508.473.2565
Tuesday & Thursday,
5:30-10:00 p.m.
- ☆ **Westwood High School**
200 Nahatan Street
781.329.3030
Monday, Tuesday, & Wednesday,
5:30-10:00 p.m.
- ☆ **Weymouth High School**
1051 Commercial Street
781.335.9112
Monday-Thursday,
5:30-10:00 p.m.

*Office hours may vary due to changes in class schedules.

A selection of Professional Development Courses and programs are held at the following locations:

- ☆ **Boxborough Woods Campus at Holiday Inn**
242 Adams Place
- ☆ **Hingham Campus at Salomon Smith Barney**
25 Recreation Park Drive
- ☆ **Lexington Campus at Minuteman Vocational Technical High School**
758 Marrett Road/Rte. 2A
- ☆ **Mansfield Campus at Motorola University**
170 Forbe Blvd., Bldg. M-3
- ☆ **Plymouth South High School**
490 Long Pond Road
- ☆ **Worcester Campus at Clark University**
950 Main Street

For Summer Office Hours
be sure to check the
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